NOV 12 1957

NOVEMBER 1957

FIREMEN

SIXTY-SECOND YEAR • NATIONAL FIRE PROTECTION ASSOCIATION

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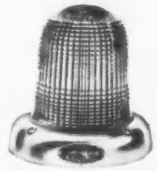

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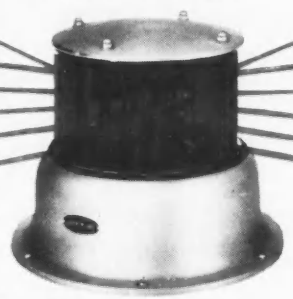

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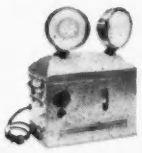

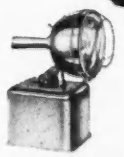

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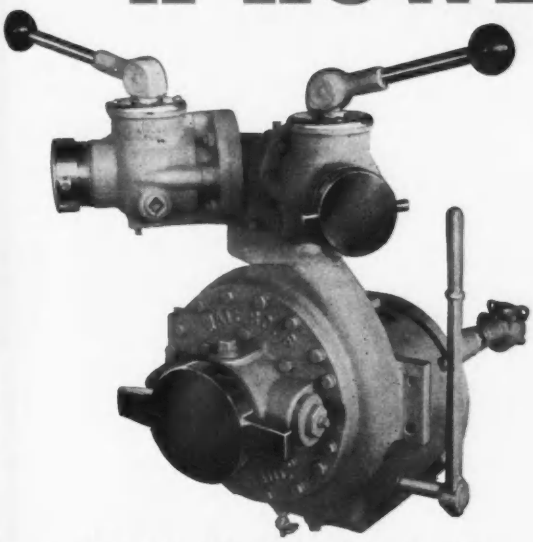

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At the touch of a finger, this handy device sprays a cool, soothing mist of Foille over the injured area in seconds. The aerosol action directs the Foille to the injury no matter where it is located. This eliminates the painful and time-consuming methods required for applying salve-type dressings.

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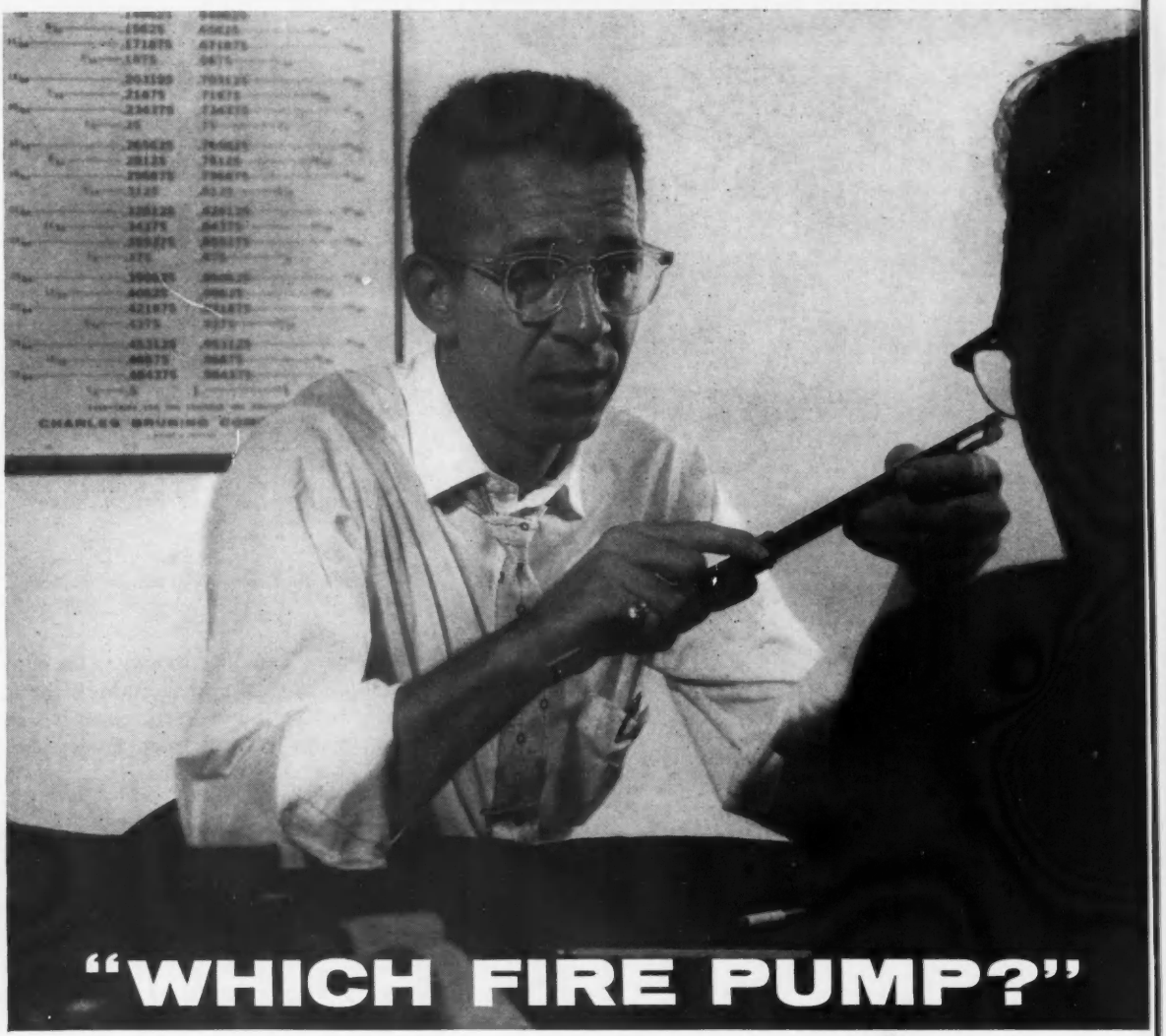

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When the master mechanic draws up specifications for a new pump, he wants one that will stay in service and out of the shop. The WATEROUS *Electro-Matic* answers that need with proven dependability, backed by seventy years of priceless experience. Electro-Matic (for fast shifting, priming and pumping), oil-lubricated ball-bearings throughout, plus rugged bronze and stainless steel at points of close-running tolerance. The exclusive two-piece horizontally split casing gives the utmost in accessibility, simplicity, freedom from leaks. Faster, safer, more dependable performance.

The *Electro-Matic* Transfer Valve: The ultimate in ease of operation. Three-position switch indicates "volume", "pressure", "off". Smoother action prevents dangerous pressure surges. Operated independently of engine speed or pump pressure. Greater convenience, speed, and safety meet sudden demands for changes in volume or pressure.

Dept. 205

Free booklet on the WATEROUS *Electro-Matic* illustrates design and adaptability to all modern chassis.

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City..... State.....

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If your water supply is limited . . . or if you operate from a tanker and must conserve your water . . . here's a new AKRON BRASS PDQ for you. A lower gallonage 1½" model with all of the features of the regular PDQ.

Resilient rubber bumper for protection against damage

Corrugated no-slip grip

Adjustable through all angles of fog and straight stream

Positive stream positioning — by feel or sight. Clicks into fog patterns or straight stream.

Swiveling "Rocker Lug" base — handle is always on top

Man-size handle

Pattern selector — can be seen in any position

Cast indicator — can't be damaged in any way

Akron quality ball shut-off

NEW! AKRON'S 1½" 50 G.P.M. PDQ FOG NOZZLE

style 1215*

Also Available in Higher Gallonage

THE COMPLETE LINE OF PDQ NOZZLES

PERFORMANCE DATA—at 100 P.S.I. Nozzle Pressure

Style	Size	GPM	LIST PRICE	
			PB	CP
1209	¾" 1"	24	$67.50	$72.00
*1215	1½"	50	72.00	76.50
1218	1½"	95	72.00	76.50
1219	1½"	125	72.00	76.50
1229	2½" for PP	250	78.50	84.00
1239	2½" Dir. Con.	250	92.00	97.50
1249	2½" with PP	250	102.00	115.50

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Mack—and you. That's the team that can design and build the finest type of fire apparatus for your needs, whether you're buying a unit or a fleet.

Prefer conventional design... or cab-forward models? Mack offers the best in both. Operate in hilly country... or over flat terrain? Mack has the right rear axle ratios for *any* situation. Operate through congested traffic? Torque converter drive and air brakes are essential and Mack has 'em. Need room for special equipment? Mack basic chassis and body design provides plenty of space for built-in equipment lockers and holders. *Whatever* your requirements, Mack meets them best.

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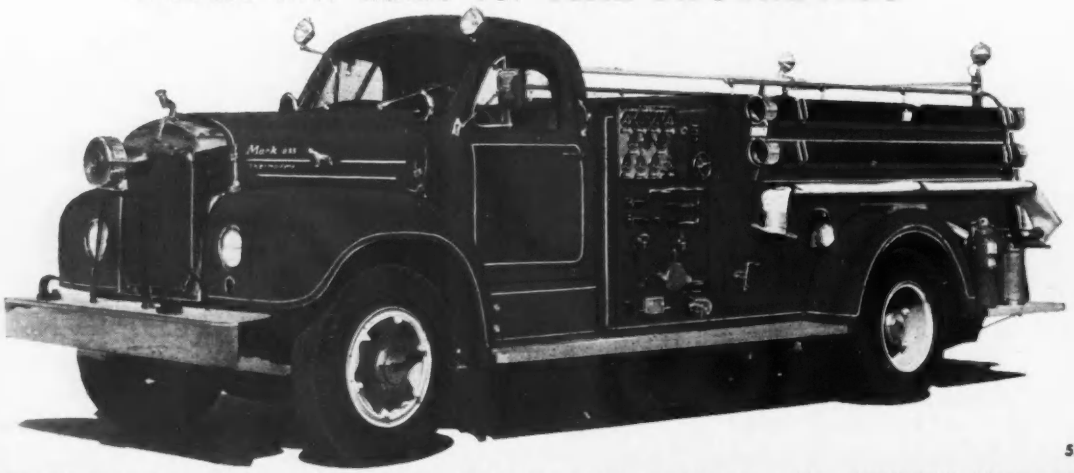
MACK *first name for* FIRE APPARATUS



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Firemen

Volume 24 — Number 11

WARREN Y. KIMBALL, EDITOR
PAUL R. LYONS, ASSOCIATE EDITOR
HENRY S. GERE, ADVERTISING MANAGER

Published monthly for the fire service members of the
NATIONAL FIRE PROTECTION ASSOCIATION
A VOLUNTARY NON-PROFIT ORGANIZATION
60 BATTERYMARCH ST., BOSTON 10, MASS.

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Cover Photo

The value of trained industrial fire brigade personnel in sound pre-planning of mutual aid response by municipal fire departments was demonstrated in the fire incident shown on this month's cover. On September 12 the Kobuta plant of Koppers Company, Inc. in Manaca, Pennsylvania, experienced a severe explosive blast and fire. It was reported that the explosion resulted from a broken process line carrying ethyl benzene at elevated temperature and pressure. Damage exceeding $250,000 was estimated.

The explosion took place at 2:40 P.M., but with response of fire fighters from 18 departments and industrial plants in Beaver County, control was established in about three hours. The ethyl benzene plant is approximately in the center of the Kobuta plant area. An official stated that the fire apparently started in an open area between catalyst casings and pump room of the ethyl benzene plant. As the cover picture shows, intense flames and heavy black smoke resulted, but fire control was achieved by well-directed large cable hose streams. (*Cover photo by Wide World*)

Fall Conference

Fire department members in the vicinity of Richmond, Virginia, are invited to attend the NFPA Fall Conference in that City, November 18–20. Headquarters will be the John Marshall Hotel, and fire fighters in uniform can attend the various meetings without paying the registration fee. As announced in the September and October issues of FIREMEN magazine, the three-day meeting will feature discussion of a variety of topics concerning municipal and industrial fire protection.

Morning sessions will begin at 9:30 A.M. and afternoon sessions at 1:30 P.M. At 3:30 P.M. on Tuesday and Wednesday, November 19 and 20, simultaneous meetings of NFPA committees will be held. Everyone is invited to attend and present their comments for discussion. Committee sessions on Tuesday will cover fire extinguishers, home fire alarm systems, and farm and forest fire protection. On Thursday, committees will discuss dust explosion hazards, fire brigades and watchmen, and municipal fire apparatus and hose.

The Wednesday morning session has been prepared for the interest of paid, call and volunteer fire departments. Speakers will include Chief Henry G. Thomas of the Hartford, Connecticut, Fire Department, NFPA vice president; Warren Y. Kimball, Manager, NFPA Fire Services; Loren S. Bush, chief engineer, Board of Fire Underwriters of the Pacific and vice president, NFPA; T. Seddon Duke, president, Star Sprinkler Company, Philadelphia, Pennsylvania, past president of NFPA.

The registration desk will be open Sunday evening, November 17, and throughout the Conference. Registration fee will be $7 on Sunday and Monday, $5 on Tuesday and Wednesday.

Christmas Poster

A brightly colored poster has been prepared for fire prevention education prior to the Christmas holiday season. Tentative price of the poster is $5 per hundred and $35 per thousand, and it may be purchased from the NFPA Publications Department, 60 Batterymarch Street, Boston 10, Massachusetts. Additional details will be published in the next issue of FIREMEN magazine. Special newspaper mats of the Christmas poster have also been prepared and may be obtained free for use in newspapers and magazines. Write to the NFPA Public Relations Department for these items.

Fire Prevention Contest

November 30 is the deadline for submitting entries to the NFPA Fire Prevention Contest. Communities or organizations wishing to enter one of the Contest's divisions — municipal, military, industrial or government — must submit their entries to the NFPA Public Relations Department before that date. Judging will take place in December, winners will be announced in January.

State and Provincial Firemen's Training — 1957

By Paul R. Lyons, Associate Editor

A MATTER of vital concern to the fire service is the status of firemen's training. Various States and Provinces approach this problem differently. Some, for example, have success with centrally located modern training facilities to which fire fighters travel for intensive training courses under competent supervisors. Other States and some of the Provinces find it more effective to conduct fire schools on an area, regional or sectional basis, encompassing only a portion of the fire departments with each training school. A third method, and one which seems to be gaining in popularity, is to send traveling instructors to various towns or counties, thus allowing fire departments to train with their own apparatus and equipment.

This year's report of State and Provincial firemen's training points up some of these significant trends. Each of the above methods of establishing an effective State-wide or Province-wide training program has brought new developments.

This year's survey includes only the training programs conducted with the support of the various Departments of Vocational Education, or through the offices of the State or Provincial Fire Marshal. It does not include the thousands of other fire fighters who received training in individual fire departments, through county organizations, or through schools and annual meetings conducted by fire chiefs' and firemen's associations. Accordingly, where names of States or Provinces are mentioned in this report, the reference is to the training program conducted with the assistance of the vocational education or fire marshals' offices.

Once again the editors have prepared this report in the form of "subject analysis." Only new subjects or subjects which received exceptional emphasis are reported below, since fundamental firemen's training subjects, such as hose and ladder evolutions, are covered in every training program.

While the methods used to accomplish results may differ, nevertheless all States and Provinces seem to be headed toward the same important objective; that is, to establish a sound progressive program which combines the demands and intent of the fire service with the effective instructional techniques of the departments of vocational education. Progress is evident. New fire schools have been constructed; additions have been made to the training staffs; and there is a sincere attempt to improve the adequacy of instruction and bring new ideas and new techniques of fire control to the attention of fire department members.

As shown in the accompanying tables, 124,967 fire fighters received instruction during the fiscal year ending June 30, 1957, and annual state-wide fire schools last year had an attendance of 12,422.

TOTAL FIREMEN RECEIVING TRAINING
(State and Provincial Programs Only)
Year Ending June 30, 1957

State		State	
Alabama	580	North Carolina	795
Arizona	177	North Dakota	1,033
Arkansas	5,879	Ohio	5,499
California	4,583	Oklahoma	2,359
Colorado	7,898	Oregon	2,948
Connecticut	1,398	Pennsylvania	10,062
Delaware	1,298	South Carolina	1,157
Florida	1,663	South Dakota	462
Georgia	5,661	Tennessee	484
Idaho	269	Utah	630
Illinois	2,285	Virginia	1,603
Indiana	4,588	Washington	12,357
Iowa	5,537	W. Virginia	700
Kansas	1,603	Wisconsin	248
Louisiana	269		
Maine	110	Total U. S.	112,708
Maryland	1,125		
Michigan	2,873	B. Columbia	2,163
Minnesota	1,500	Nova Scotia	3,000
Mississippi	1,050	Ontario	6,482
Missouri	2,483	Saskatchewan	614
Montana	899		
Nebraska	6,145	Total Can.	12,259
Nevada	372		
New Jersey	1,250		
New York	9,801	Gr. Total	124,967

Instructor Training

There is strong demand for competent instructors in firemen's training programs. During the past few years increased attention has been given to this need and a number of States and Provinces have established valuable "teacher-training"

ANNUAL STATE-WIDE FIRE SCHOOLS
1957

State	Firemen Attend.	No. Years Held
Alabama	148	21
Arkansas	154	11
Colorado	1,012	24
Connecticut	196	16
Delaware	476	9
Florida	173	28
Georgia	518	6
Idaho	200	8
Illinois	872	—
Indiana	262	33
Iowa	585	33
Kansas	272	—
Louisiana	127	2
Maryland	252	24
Michigan	360	29
Minnesota	250	29
Mississippi	52	—
Missouri	163	—
Nebraska	1,020	20
New York	108	9
North Carolina	528	28
North Dakota	805	—
Ohio	122	12
Oklahoma	209	24
Pennsylvania	287	—
Tennessee	121	14
Texas	1,387	28
Utah	530	—
Virginia	313	11
Washington	700	—
West Virginia	220	25
Total	12,422	

Fire fighters at the Texas Firemen's Training School advance on a flammable liquids fire. The school is conducted by the Engineering Extension Service, Texas A&M College, College Station, Texas.

Volunteer fire fighters practice with axes at the Maryland Fire School, University of Maryland, College Park, Maryland.

Aircraft crash fire fighting was a feature of the New York State training program, conducted under the direction of the Bureau of Fire, New York Division of Safety.

Instruction in the use of rope at the Fire College, University of Michigan, Ann Arbor, Michigan.

Gas mask training in the State of Washington program. (Photo by Bailey Reynolds, Spokane Fire Department.)

courses. Through this training, competent fire officers and fire fighters are taught how to serve as teachers for the subjects important to fire department training, administration and operation. They, in turn, can then serve at the state training center or can travel to the various regions and towns to provide instruction to individual fire departments. This year emphasis was given to instructor training in the following states:

Arkansas ran a 3-day course for 82 fire service members. . . . *Colorado* ran a special 30-hour course for 62 men. This state has 12 traveling instructors operating in the Denver area under the direction of Captain E. W. Crawford, with 7 to 10 additional instructors traveling through other parts of the state. . . . *Delaware* has set up new courses for training instructors. . . . *Florida* ran a four-day conference with 47 fire service members attending. . . . *Indiana* plans a special seminar for fire department instructors. . . . *Iowa*, which gives particular attention to the volunteer fire departments, this year trained 19 instructors for this purpose, in addition to having special courses for volunteer fire department officers and drillmasters. . . . *Maine*, during the past year, has had a full-time superintendent in charge of training 36 part-time instructors. Highlighting the program this year were two special schools for instructor training. . . . *Michigan* ran two 8-hour courses for instructors with 132 attending. . . . *New York* ran its annual Fire Instructors Conference for 108 members of the fire service. . . . *North Dakota*, *Pennsylvania*, *Tennessee* were other states which focused attention on teacher training, while the Province of *Ontario* conducted 9 county schools for instructors with a total of 190 men attending.

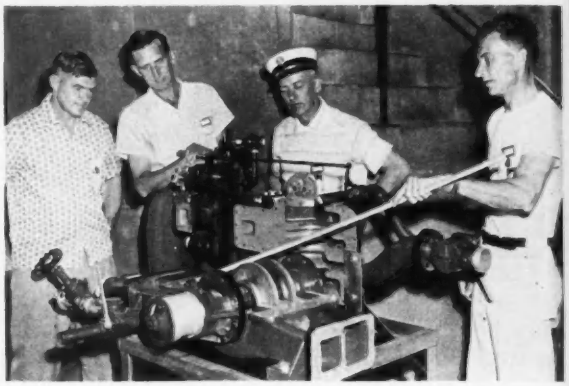
Officer Training

More attention is being given to the specialized training of fire department officers and other key personnel. As the problems of fire department operation and administration become more complex, the demand for such training increases. *California*, for example, again repeated its Fire Administration Course for "second in command" officers, with sessions at Sacramento and Oakland. In addition, a training officers' workshop was held in Fresno for 134 fire service members. . . . *Colorado* reported a highly successful 30-hour course for top officers of fire departments. . . . The *Connecticut* program featured a Fire Officers Conference at the University of Connecticut at Storrs, with 114 attending. . . . *Iowa* found considerable success with special training courses for officers of volunteer fire departments. . . . *Maryland* had 64 fire department officers attending a special conference. . . . *Michigan* ran two 18-hour officers' schools with 393 attending. That state also plans a special seminar for training chiefs of departments. . . . *North Dakota* had 207 attending a special fire officers' school, while *Ohio* had 133 men taking the same type of training. . . . *Oregon* also reported success with a special course for fire officers. . . . The *British Columbia* 4-day Fire College was again held last year, and *Ontario* held its annual 2-day Training Conference at the University of Toronto with 137 municipal fire chiefs attending.

Traveling Instructors

More use is being made of traveling instructors who visit fire departments either on schedule or on request. Some States and Provinces favor training one, or only a few fire departments at a time; others seem to think that better coverage is obtained through area, zone or regional schools. For example, *Arkansas* reported that 85 percent of the fire departments in the state were covered through regional fire schools. . . . *California*, with Superintendent of Fire Training Thomas S. Ward and eight traveling instructors, reported that 2,104 fire fighters took part in zone training and 2,479 received departmental training. . . . *Colorado* conducted training in 81 different localities in the state . . . . *Florida* and *Georgia* also make good use of traveling instructors. . . . *Illinois* is planning to establish new regional training schools. . . . *Louisiana* got good results with six "sectional" schools. . . . *Maine*, which just launched its full-time training program last year, plans to rely on this type of training coverage. . . . *Minnesota* held 14 regional schools, giving particular attention to fire fighting problems in aircraft crash incidents. . . . *North Dakota* reported three successful regional meetings but favors fire school training "at the local level." . . . *Ohio* reported 11 regional training schools. . . . *Oregon* conducted classes on handling fires in flammable

A 60 degree fog nozzle pattern is demonstrated for trainees at the Alabama Fire School.



Pump instruction in the Washington State training program. (Photo by Bailey Reynolds, Spokane Fire Department.)

liquids and gases, and advanced fire control techniques. . . . *Pennsylvania*, in addition to its fire school activities at Lewistown, conducted twelve 18-hour county and regional schools for 7,019 fire fighters, in addition to training 2,140 more in local classes. . . . *South Carolina* is very enthusiastic about training results achieved with traveling instructors and reports that 1,157 fire fighters in 42 cities and towns received such training last year. . . . *Virginia*, with a new permanent traveling instructor, conducted 8 regional and 19 local fire training schools. . . . *Wisconsin* held 5 local training schools for 168 men . . . *Wyoming* reported good results with district fire schools. . . . All of the Provinces of Canada rely on itinerant training. *Ontario*, for example, had 238 fire fighters attend six regional schools and covered 293 individual fire departments with traveling instructors. . . . *Nova Scotia* sends a traveling instructor to fire departments on request and maintains an up-to-date film library through which films can be loaned to fire departments for training purposes. . . . *Saskatchewan* covers its volunteer fire fighters with traveling instructors.

Industrial and Institutional Fire Brigades

Each year more members of industrial and institutional fire brigades are taking part in the firemen's training programs. As a result, more allowance is being made for such training. *Alabama* last year started training brigade members of the chemical industry. . . . *Connecticut* plans to start fire brigade training this year. . . . *Florida*, *Illinois*, *Maryland*, *Michigan*, *Ohio*, *Tennessee* and *West Virginia* this year enlarged their programs to include plant fire brigade training. . . . *Indiana*, *Iowa* and *Michigan* conducted special industrial fire control seminars or safety schools. . . . *Montana*, *Nevada*, *Pennsylvania* and *Washington* gave particular attention to the training of hospital fire brigade personnel. . . . *British Columbia* covered about 20 plant fire brigades in its program.

New Training Equipment

Many new instructional techniques are being utilized in firemen's training programs. In addition, various states are appropriating funds for up-to-date apparatus to be utilized at fire colleges or in other training. *Alabama*, for example, within the past two years has received a $40,000 appropriation from the Legislature to bring a 65-ft. aerial ladder, motion picture projectors, cut-away pump models and other training equipment to the State Fire College. . . . *Colorado* has added four new film projectors to its equipment. . . . *Illinois* received five cut-away pump models from various manufacturers. . . . *New York State* reports that "flip charts" used by instructors have received much favorable comment. . . . *Oklahoma* added some of the latest type fog nozzles to its equipment. . . . *Oregon* has acquired a working model pump as well as some films on water fog. . . . *Tennessee*, with its new State Fire College at Murfreesboro, has obtained a wealth of instructional materials and fire fighting equipment. Included are new visual aids such as a 16mm projector, the National Fire Codes published by the NFPA, various codes of the State, training materials developed by the Fire Service Training Association, hose, ladders, masks, extinguishers and other equipment, particularly the small tools utilized by fire apparatus of small towns. . . . *British Columbia* and *Nova Scotia* added new films to their training libraries.

What Is Wanted?

AGAIN this year the editors of FIREMEN requested information on what fire fighters want in future training. The replies give some indication of the concern that members of the fire service have for current fire fighting and fire control problems. For example, Arizona fire fighters want information on the latest changes in the grading schedule of the National Board of Fire Underwriters, as well as up-to-date data on proper regulation of insecticides. . . . *Colorado* fire fighters are interested in fixed extinguishing systems and modern rescue techniques. . . . Men in *Delaware* want more information on home inspections, first aid and arson . . . *Nevada* fire fighters are interested in the methods and procedure of establishing bureaus of fire prevention. . . . *North Dakota* fire fighters want training on forest fire control with aircraft. . . . *Oklahoma* men expressed interest in aircraft identification, rescue problems and photography in the fire service. . . . *Oregon* training officers received requests for training apparatus drivers, pump operation and fire department administration. . . . *Wyoming* fire fighters expressed considerable interest in the methods of training volunteer fire de-

Maryland fire fighters handle a flammable liquids fire at College Park. Man at left followed sensible practice of using a torch to ignite fire.

One of the experimental fires conducted in the Michigan firemen's training program.

officers. . . . *Indiana* has planned special seminars for fire department instructors and inspectors. . . . In *Kansas* there is a movement for establishing a state fire school and a year-round training program. . . . *Maine* has launched its new state-wide training program and has already reported good results. . . . In *Michigan* $500,000 has been appropriated for construction of a new state fire school beginning January 1, 1958. . . . *Ohio* has a special committee working toward this goal. . . . *Virginia* expects to conduct a larger number of regional and local fire schools. . . . *Wyoming* will broaden coverage by instruction training in many more localities. . . . *Wisconsin* has appropriated $50,000 for improving its state-wide training program. . . . *Saskatchewan* plans a special school for instructors. (Excepting State of Washington photos, all pictures are credited to fire schools of states in captions — *Ed.*)

partment personnel, alarm systems for volunteers, toxic gases, handling charged electrical wires and many other subjects. . . . In *Utah* more instruction has been requested on radiological hazards. . . . *British Columbia* fire fighters were interested in the proper methods of handling television fires.

New Types of Training

One subject which has commanded a great deal of attention from the fire service is the hazard of radioactive materials. A number of the States and Provinces report that the fire fighters are requesting this training. *Connecticut, Illinois, Michigan, Oklahoma* and *Pennsylvania* have already included such training. *Tennessee, Utah* and *British Columbia* have also requested the training. . . . *Idaho* held a special course on the study of poisonous chemicals. . . . *New York* gave considerable attention to aircraft crash fire fighting and rescue, and inaugurated a special course of six 3-hour units. In addition, the Division of Safety began a special 10-hour course on arson detection. . . . *Oregon* incorporated new training on fog fire fighting. . . . *Washington* gave particular attention to the handling of automobile fires and brush, grass and grain fires. . . . *Ontario* held some successful electrical inspection courses for municipal fire department personnel. Seven of these 2-day courses had a total attendance of 233.

What's Ahead?

Significant changes will occur in the coming year in the many firemen's training programs. Most of the States and Provinces reporting have already planned some important additions to their training programs to meet the demands of the fire service. *Alabama*, for example, plans to train 30 to 35 new instructors. . . . *Colorado* has scheduled two 30-hour courses for top level fire officers and for fire company

Two stages of a fire in "Messy Pete's" garage, a feature of the excellent fire training building facilities of the Pennsylvania Fire College in Lewistown.

WHAT ABOUT MANPOWER?

PART I

by Warren Y. Kimball, Manager, NFPA Fire Services Department and Editor, FIREMEN Magazine

THE average city is starved for fire fighters and it is time the public knew the facts of life regarding its fire departments. The public should be informed of bad situations, such as one which recently caused a well-known fire chief in a community of nearly 50,000 population to say, "I haven't even got a skeleton force."

This is not an isolated case. It is true in a large proportion of the fire departments throughout the United States. The public should be told the facts. Shiny fire engines do not put out the fires. A 1,000 gallon per minute pumper with a two-man crew is hardly more effective than a 100 gpm pumper. With only two men to operate this excellent apparatus, its fire fighting potential is little better than a hand tub.

Cities are generally willing to buy fire apparatus. The cost of the 1,000 gpm pumper is about $1,000 per year of its expected service life. The citizens are impressed and may brag about the apparatus. But they may not know that only one or two men are assigned to respond with this piece that needs at least a five-man crew to promptly utilize any significant proportion of its potential.

We are not discussing the manpower response problems of volunteer fire departments. That is a separate matter. We are talking about cities with paid fire departments — cities with populations from 20,000 to 100,000 persons.

We hear so much about the reasons for large loss fires and the great loss of life by fire. We are told of the combustible construction and flammable contents of American buildings. We are told about our large fire areas and lack of private protection and alarm services. We are told that last year 430 big fires, each with a loss of over one-quarter million dollars, caused one-quarter of the total fire loss and that other big fires in the $100,000 to $250,000 class made up much of the balance.

We are not told that the average city fire department does not at present have sufficient manpower on duty, despite strong water supplies and big pumps, to place effective streams in service needed in the critical stages of a fire to prevent a major burnout.

The fact is that a large number of the American fire departments are so poorly manned that only limited use can be made of 2½-in. lines providing the standard 250 gpm hose streams.

Modern fire fighters know that good work can be done with 1½-in. lines on incipient fires and on fires involving relatively small areas inside buildings. What is frightening is that over half of the fire companies in the United States are only manned to provide 1½-in. lines at the critical stages of a fire. Multiple alarms or off-shift men must be employed to bring the assigned first due fire fighting companies up to minimum working strength, and fires seldom wait. In a number of communities there are not sufficient men to drive all of the first alarm apparatus to a fire, and full response must wait until off-duty firemen return to the fire station to man the apparatus.

The startling facts are that approximately half of the fire engine companies of the paid fire departments in the United States of under 100,000 population have three or less paid men on duty, and less than 20 percent have the proper manpower on duty with the apparatus. The situation is actually worse than this because many fire departments do not have sufficient men to keep up this very poor manning during vacation periods or when there is sickness.

If this manpower problem with the engine companies appears bad, the manning of ladder trucks, so essential for fire rescues and many other fire fighting jobs, is three times worse. Half of the ladder trucks have only one man on duty. Many have no assigned crew, and only respond on special assignment with men detailed from engine companies.

It is an adage of the experienced fire fighter that a fire department is only as good as its ladder companies. These companies open up and prepare the building while the engine companies are getting water on the fire, and ladder trucks carry a large assortment of tools that cannot be conveniently carried on smaller pumping apparatus.

Much is made of the fact that one man can raise the power-operated aerial ladder, and this is used as an excuse for one-man ladder companies. Unfortunately, however, the use of the aerial is not one tenth of the truck company duties. The aerial can only reach limited portions of a building directly accessible to the truck. Most ladder work must be done by ground ladders, and the 35-ft. ladder which is the most frequently used requires three men. Longer ladders require more men and often are not used because sufficient men are not available.

The one-man aerial ladder operation is not efficient and does not provide good service. An aerial ladder is a complicated machine that requires a trained ladder crew for speedy, efficient use. When one man must do the work of several men, the operation is slow and less efficient.

The grading schedule of the National Board of Fire Underwriters shows the number of men who should be on duty with various classes of fire companies:

Companies	*Minimum Number of Men on Duty*
Within or near high-value district:	
Pumper Company	7
Ladder Company (Aerial)	7
Pumper-Ladder Company	10
Service Ladder Company	8
Hose Company	6
In other districts:	
Pumper Company	5
Ladder Company	6
Pumper-Ladder Company	8
Hose Company	4

THESE figures indicate that fire department manpower in the United States on the average is at least 50 percent deficient. This is disregarding the fact that in many communities there are insufficient fire companies to give adequate coverage of all areas, or that in all too many cases the few fire fighters on duty are still required to work excessively long hours despite the fact that fire fighting is a highly skilled job requiring technical knowledge and a high degree of training.

We believe that the average citizen and taxpayer wants a good fire department. A poorly manned fire department gives a false sense of security and inevitably results in much larger fire losses. If the public realized the state of municipal fire protection, they would be willing to pay the relatively small cost required to make their fire force truly dependable and effective.

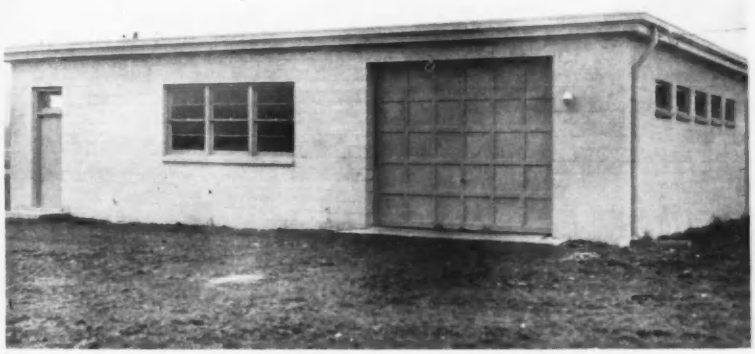
Unfortunately, these facts are not known. The fire chief is often afraid to speak out because his superiors who set the municipal budget have put an arbitrary lid on fire department expenditures and he might be out of a job if he spoke too loudly. About all the chief can do is to make recommendations in his annual report for more men, but these recommendations seldom have much audience or are taken very seriously upstairs in "city hall."

Fire insurance rating agencies have been making reports and recommendations on needed fire company manpower, but all too often these important recommendations are ignored by local officials and fail to receive public support.

It is suggested that all organizations interested in good municipal fire protection should join in a program to acquaint the public with the serious manpower shortage in the majority of paid fire departments.

New Fire School in Tennessee

FIRE fighters in Tennessee this year are benefiting by training at a new center in Murfreesboro. The State-wide program is under the direction of State Supervisor W. A. Seeley, Trade and Industrial Education Department, Division of Vocational Education, and Itinerant Instructor Homer S. Elkins, Director of the State Fire School.



View of Administration Building at the new Tennessee State Fire School.

Building for training features fixed thermocouples, standard fire doors and metal shutters.

The new school features a two-story fire resistant structure with fire doors, shutters and 19 stations for thermocouples which lead to a pyrometer attached to the outside of the building. There is also a four-story drill tower with a smoke-room and sprinkler system on the first floor, and a standpipe from a siamese connection to the top floor.

In addition there is an administration building which includes a fire station with air-conditioned office and library, apparatus room, storage room and rest room facilities.

The Training Center also includes a 22,000-gal. pump test pit.

Scholarship Awards

JOHN J. BRYAN, professor and head of Fire Protection Curriculum at the University of Maryland, reports that five scholarship awards were presented to freshmen students attending the Fire Protection Curriculum. Awards presented for 1957–58 were:

Maryland State Firemen's Association Award — $300 each to Michael Chisholm, Cumberland and Ralph Collins, III, of Brentwood.

Prince George's County Volunteer Firemen's Association Award — $300 to Louis R. Carpenter of Kent Village.

Anne Arundel County Volunteer Firemen's Association Award — $300 to Dennis J. Hornung, Linthicum Heights.

The Akron Brass Manufacturing Company Award — $500 to Frank E. Homberg, Jr., Brooklyn, Md.

Visiting firemen try out facilities at the Williamsburg Fire Service and Research Center. Here they prepare to extinguish a fire in the Center's structural fire building.

Fire Fighters Build Training Center

One of the recently built firemen's training centers is now in operation in Williamsburg, Virginia. In this story Fire Marshal and Chief of the Department Eliott W. Jayne describes how the Center was constructed through volunteer labor and small expenditure.

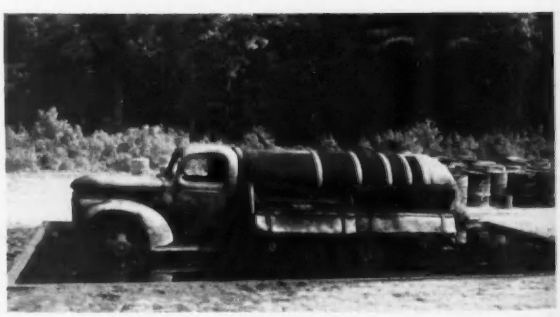
THE Williamsburg, Virginia, Fire Department is a strong believer in the adage "learning by doing." This phrase may even be applied to the construction of the Williamsburg Fire Service Research and Training Center. The Department is extremely proud of its very practical, if not beautiful, training area and we feel that almost any small department has, within its reach, similar useful and inexpensive training facilities.

Small fire departments are almost universally faced with financial problems. Our own plans for a training area definitely felt the pinch of finances, and the construction of these grounds could not have been brought about without the untiring help of the firemen themselves, businessmen in the area, and the cooperation of the City Officials. The approximate cost to the Fire Department for these training facilities was $2,200. The area is located on the city reservoir watershed property with an unlimited amount of land available.

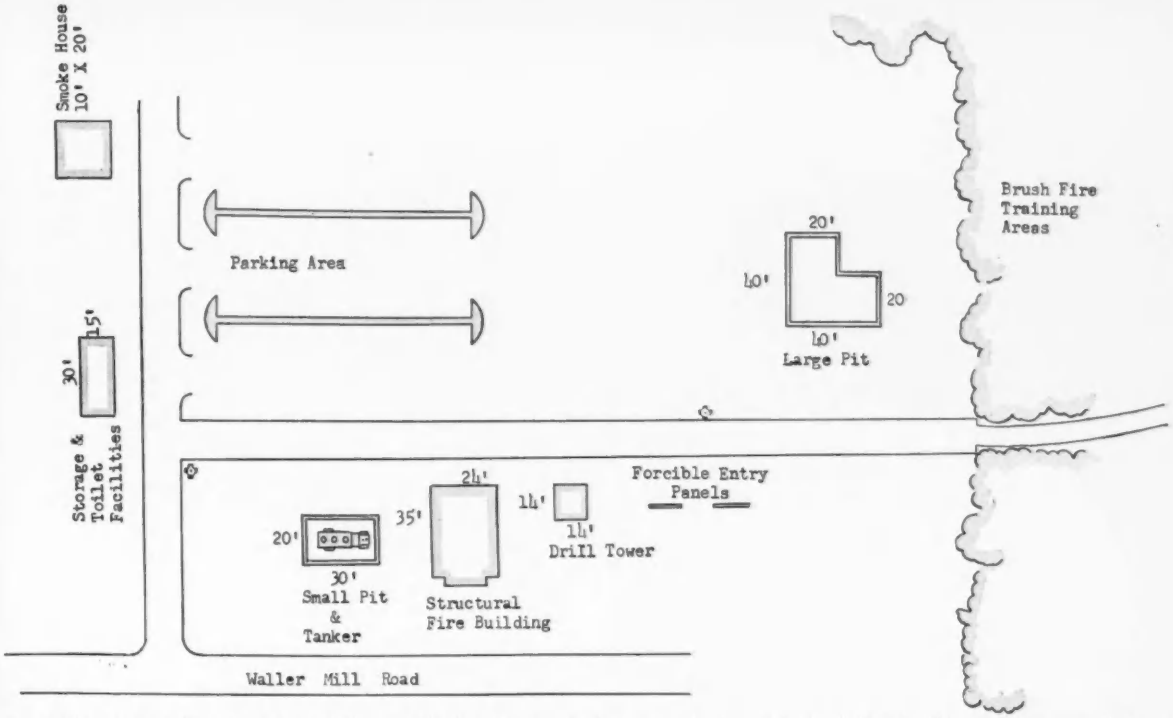
In 1953, our first step was to have one of our honorary firemen, a local contractor, clear and grade three acres of this land in his spare time. A one-story frame 15 by 30 ft. building, donated to the Department, was moved, placed on a foundation, with plumbing installed, for $275. It provides storage space for equipment, toilet facilities, and a small classroom or lounge for firemen.

Our next endeavor was to construct a flammable liquid pit. This was accomplished very easily with the aid of another volunteer, who is also Superintendent of Public Works for the City. Regular curb and gutter forms were set in place to form the sides of the pit, and concrete was poured in the sides and on the ground for a floor. This pit measures 30 by 20 ft. with six-in. curb sides. The City furnished the concrete and a local oil distributor gave the Department an old 800-gallon tanker which was placed in the center of the pit. Our fire fighters, by training on this pit, gain basic knowledge in flammable liquid fires, plus rescue and fire-fighting procedures involving flammable liquid vehicles.

The next project undertaken was a structural fire building, constructed by the firemen, with the aid of the City Carpenter. The building measures 24 by 35 ft. and has a full second floor and attic. The first floor is partitioned into four rooms: living room, two bedrooms and a kitchen. The ground floor is poured concrete and the walls and partitions are of cinder block construction. The second floor is prestressed concrete, given to the Department at cost by a local contractor who is interested in seeing how this material reacts under fire conditions. The second floor ceiling and the roof covering on the building are plain corrugated roofing metal, nailed directly to the wooden 2- by 6-in. trusses supporting the roof. Two roof scuttles were provided on opposite sides and at each end for practical ventilation



Williamsburg fire fighters learn about flammable liquid fires on this training pit. The tanker is used for fire and rescue training involving flammable liquid vehicles.



Sketch of layout of Williamsburg Training Center, which is on Waller Road, about one mile outside city limits but within protected area. Hydrants on the training grounds are supplied by the city water mains.

work. Windows are steel sash type, with metal panes instead of glass. Wood has been used for doors, stairs, and roof trusses, keeping the original cost low, and providing simple and inexpensive replacement.

Class A and Class B fires are ignited in the building. Scrap lumber and discarded automobile tires are obtained at no cost, and provide good training fires. For Class B fire work, 55-gallon drums, cut lengthwise with short angle iron legs welded on the ends, provide fine movable containers for flammable liquids.

The cost of this building to the Department was:

Cinder blocks and cement — $250; concrete flooring — $300; lumber — $100; metal ceiling and roof — $400. The total cost of the structural fire building was $1,050.

As the confidence and proficiency of the firemen increased, there was demand for a larger flammable liquid pit. This was constructed in the same manner as the first one, but to increase extinguishment problems, it was built in an "L" shape 40 by 40 ft. with 20-ft. wide ends. A 1,200 sq. ft. area is provided here for liquid fires. A natural exposure problem is also present since there is a pine woods within thirty feet of the pit's edge. In both pits a 2-in. valved iron pipe is placed flush with the concrete floor so that excess water may be drained.

A drill tower was the next project. It is a very practical and inexpensive answer to our rescue and hose and ladder evolution training problems. Four 45-ft. utility poles were purchased for $200. These poles were set in the ground forming a 14-ft. square. With the use of 2- by 4-in. studding, 2- by 12-in. floor joists and flooring, and 1- by 6-in. siding, these four poles were framed in, and our 4-story drill tower was constructed. A concrete floor was poured for the base and inside stairs and landings of the tower were built to correspond with those found in the majority of the large college dormitories in Williamsburg, so that the firemen could train under conditions very similar to those found in the City. Lumber for framing cost $400, making the total cost of the drill tower $600.

As our training grounds expanded so did our training activities. In 1956 the Fire Department, with the cooperation of the College of William and Mary and various State Firemen's agencies, undertook the initiation of an annual week-long state-wide fire school. With larger classes in view, there was need for a separate smokehouse for gas mask training, and forcible entry and floor panels for small tool instruction.

A one-story smokehouse was very simply constructed. A 10- by 20-ft. concrete slab was poured for its floor, 2- by 4-in. studding and rafters were put in place, and the entire building was covered with corrugated metal. A slatted wooden partition was constructed in the center of the building providing an

Attack on flammable liquid fire in 1,200-sq.-ft. L-shaped pit.

View of training tower, structural fire building and small tanker pit. Flood lighting was set up by firemen-electricians to provide adequate lighting for night training sessions.

Metal-clad smokehouse is divided by a slatted wooden partition to provide obstacles for training purposes. Easily vented, the building can also be used for storage.

Door and window panels provide trainees with practical experience in the use of forcible entry tools.

Fire Marshal Eliott W. Jayne and Governor Thomas B. Stanley of Virginia view activities at the Second Annual Virginia Firemen's School. Note hydrant at right. The main city pumping station is located at the edge of School, causing all city water to pass through training grounds.

obstacle for training purposes. Two large doors in one end of the building cause quick ventilation so that the building can be used for future storage. The smokehouse cost $250.

Two large wooden forcible entry panels were given to the Department by a local business. These panels provide door and window facilities for instruction and practical work purposes. Six 14- by 14-ft. floor panels were made out of rough lumber for use in the practical work with forcible entry tools.

The problem had to be solved of providing adequate lighting for volunteers who were working on these various projects at night. Discarded utility poles, floodlights, and wire were obtained without cost. The poles were set in place, and various firemen, who are also electricians, wired floodlights. The grounds are now completely lighted for night training sessions.

A new 30- by 35-ft. one-story building has been given to the Department by a local utility company. This, when moved into place on the grounds, will provide a fine large classroom for lectures and instruction.

The fire training grounds have received a great deal of use since their start in 1953. In 1956 and 1957, statewide firemen's schools, of one-week duration, were held at the grounds. A one-week course in structural fire fighting was held for members of the National Park Service from southeastern United States. Various fire departments have participated in a comprehensive, one-day school at the training grounds. The training area is also used during Fire Prevention Week, when a 2½-hour demonstration is given by the Department on the extinguishment of the various pits and structures.

The Williamsburg Fire Department could not place a real value on its training grounds. The $2,200 paid for construction represents a small fraction of the actual value gained from the facilities. A project such as this not only improves the firemen's efficiency at the scene of a fire, but it also greatly increases the public's opinion of the fire service, the Department's morale, and instills a strong feeling of accomplishment in each fireman.

EARLY ROMAN FIRE SERVICES

Digested from an article in the September, 1956 issue of *Antincendio*, a monthly publication for members of the Italian fire service. It was translated for FIREMEN by Miss Elizabeth Larato, a secretary of the Boston, Massachusetts, Fire Department Training Division.

WHEN Augustus became ruler of Rome in 24 B.C., initiating the golden era of the empire, one of his first problems, which had remained unsolved since the early days of Caesar, was that of preserving the people from the threat of starvation and corruption.

Agriculture was on the decline, and wheat had to be imported from the overseas provinces of Sicily, Sardinia and Africa, whose production scarcely covered their own needs. In addition, it was becoming increasingly evident that the Senate was unable to cope with the problem of increasing duties of supervision and of providing food.

As Lord of Egypt, the richest wheat country in the world, Augustus could not find a solution to this vital problem which affected the population of Rome and of other cities under his care, who were no less important and needy. Also, fires, robberies and extortions were becoming more frequent due to building construction used at that time and the new and heterogeneous elements seeping in among the people. Narrow, winding streets and the total lack of light added to these problems. Frequency, rather than the spreading of fires, presented serious dangers, but the fires usually were suppressed and checked effectively.

"Vigile," or watchmen, were thus created under Augustus and the necessary regulations for preventing and checking fires became recognized officially. However, nightly watch organizations for the protection of sacred articles existed in Ravenna and in Alexandria long before Augustus.

In the days of the Republic, there was no well organized corps for that purpose, except for groups of slaves kept by rich people for their own private use. Several attempts had been made, namely, the creation of a board of three members to which were later added the "quinqueviri" (five). These organizations, however, proved inadequate mostly through neglect than for such reasons as the impossibility of equipping and entrusting slaves for this type of work.

Left: the Emperor Nero was reported to be the first official to set up an organization for safe fire prevention measures.

One of the slave members, Publio Villio, was accused by a tribune of the people of negligence in a fire on the Via Sacra. Perhaps other more serious cases of nonreadiness had resulted in major disasters, but the record of this particular incident has gone down in history because of the bitter reprimand Publio Villio received. This proves the existence of such organizations.

At the beginning, Augustus tried to improve upon the ordinances created by his predecessors without creating an upheaval, and put at the disposition of the Senate a group of 600 slaves for the dual purpose of guarding the city at night and extinguishing fires (22 B.C.). (Was this the start of "integration?" — *Ed.*)

However, neither fires nor crimes seemed to lessen. ('t was ever thus.—*Ed.*) The Senate had demonstrated that they could not cope with both the difficulties of the wheat market and supervising the city. In order to gain the good graces of the people, the Senate decided to put Egnatius Rufus in charge of a private brigade of watchmen who willingly carried out imperial orders. His action and initiative resulted in heavier restriction on the duties and responsibilities of the guards, laws which still did not prove effective in saving Rome from destruction by fire and from thievery.

After a very serious fire in the year 7 B.C., Augustus decided to take matters into his own hands by creating an organization of Watchmen.

Watchmen at the Time of the Caesars

Augustus created seven cohorts of 1,000 watchmen each and 49 companies, each cohort commanded by a tribune, and all under the charge of the Prefect Guard who was a nobleman. (In the Roman army a Division consisted of 10 cohorts.) This was one of the highest positions of the nobility, carrying with it the titles "Most Eminent," "Most Splendid," and later, that of "Most Spectacular"; but, most of all, because of the fact that he was directly responsible to the prefects of Annona, Egypt and Pretorio.

There were four watch tours, lasting from six in the evening to six in the morning of the following day. The 7,000 men belonging to this new corps became known as "Vigiles." They patrolled the walls and other parts of the city at night. Their duties were to watch for thieves, prevent and fight fires, stop slaves from escaping; in other words, to protect the citizens' rights. Although they were not in principle a military corps, the Vigiles were paid from army funds. However, in the third century, the title of "Militia Vigilum" was bestowed upon them, and they had a right to Roman citizenship after six years of uncensored service, later reduced to five.

In time and with good service, the watchmen's position reached importance. Ulpiano, a Roman judge of the third century, Prefect of Pretorio, and later of Annona, defined their positions according to their assignments:

1. Firemen (those who put out fires)
2. Those who repressed such lawbreakers as looters, robbers, criminals, or receivers of stolen goods
3. Those who patrolled the city
4. Those who warned householders
5. Watchmen who watched over property of the citizens

NIGHT patrolling was the principal service. Some carried an axe and a pail for prompt use in case of fire; some needed whips for immediate punishment of thieves and those protecting them; and other squads captured runaway slaves and patrolled the city.

Augustus had divided Rome into 14 sections, assigning two sections to each cohort of Vigiles.

The Stations and the Cohorts

At the beginning the watchmen, or guards, lived in private houses, altered to their needs. Later they had their own places, the so-called "stazioni" (stations). Occasional findings have revealed the existence of some of these stations and have led to speculation about others.

Evidence of the First Cohort's station consists of an engraved piece of marble found in the vicinity of the Church of Saints Cosma and Damiano, the plan of which dates back to the time of Settimio Severo. This plan shows three parallel rectangular courtyards, 35 by 135 meters (approximately 105 by 445 feet) each surrounded by rooms adapted for various uses. The headquarters of the Prefect and 1,000 men were located in the station.

After the third century, the cohorts assumed the name of the reigning emperor; the First had been named Antoniniana and the Seventh had successive titles such as Antoniniana of Caracalla, Severiana of Allessandro Severo and Filippiana of the Emperor Filippo Arabo, as well as Mamiana in honor of Mamaea, august mother of Allessandro.

The Praefectus Vigilum

The Prefect of the watchmen was not a true magistrate, but neither was he merely an official. From his office he could rise to Prefect of Annona before reaching the highest position of Prefect of Egypt.

From the days of Traiano to the days of Dioclesian, the Prefect also had at his command a Subprefect, and the seven cohorts had a total of 14 substations. According to Paulus, the Prefect had to be watchful and courageous through the night watch.

He was "a most eminent and spectacular man." Culprits who were arrested were brought to him. Trials were brief and took place during the day. Those guilty of serious crimes were referred to the Prefect of the city. Thus, the duties of Prefect of the watchmen did not terminate with dawn, for he was always on duty. If the squad in charge of extinguishing fires ran out of water at any time, the Prefect, who also had to be present at the fire, was responsible.

The strange mixture of the Prefects' functions, partly military and partly judicial, prevented them from being true and proper officials. Their work was more like that of administrators. Many were promoted to that position through knowledge or learning requiring a familiarity with law.

The corps under the supervision of the Prefect consisted of 63 men. The Subprefect had at his disposal 9 men and the Tribune of the cohort was in charge of 24 men. The technical corps of the cohort consisted of 25 men. Each cohort had four doctors, who did not count in manpower, but were included on the list.

Assignments and Duties

The Watchmen's Corps consisted of seven cohorts, with a Tribune at the head of each. The cohorts were divided into 49 (companies) with a man in charge of each. The Prefect also had at his disposal a Vice Prefect and a Subprefect. Duties of the men were varied. One member of the group interrogated the accused. Another made out the daily reports. Some men wrote out the Prefect's orders. The librarian kept records of salaries, amount of wheat and provisions for the watchmen. The Commander of the Watchmen's Corps gave orders to his men and his position corresponded to that of a captain who gives orders for the moving of men in battle or any other action.

The Corps also consisted of standard and seal bearers, who always carried an image of the emperor. Signals were given by horns, trumpets and bugles. One man was in charge of nonmilitary prisons in which those arrested during the night were locked up.

Each cohort had religious leaders who anointed the watchmen and the victims for sacrifice.

The fire fighters in the group were experienced in handling fire equipment (hose), life nets, and in providing illumination with torches. The work of the torchbearer lasted a month, but could be repeated during the year. It was evidently a periodic duty and a very important one, judging from the inscriptions that have come to light on the walls of the watch posts.

All of the watchmen were skillful in using arms as well as the limited equipment of their trade. If they were not real soldiers, they were, in all respects, "military men who could render testimony to military life" (Ulpiano).

The watchmen protected all movable and immovable property of the citizens from fires and thieves. It is not well known which of the two duties exceeded the other; we do not have more specific and sufficient information on the fire activities of the watchmen on the many occasions in which fires brought disaster to the city.

IN THE first year of the reign of Augustus, Rome was the victim of a raging fire which destroyed most of it; two years later, another fire reduced the Forum and the nearby buildings to ruins.

With the reign of the emperors, fires followed successively. As everyone knows, under Nero fire devastated five regions during 64 A.D. Whether planned or spontaneous, the fire extended through large deposits of grain, oil, spices and other materials, developing into vast proportions because of the crowded buildings and the twisting, narrow streets.

Fire Equipment

Besides arms, the watchmen carried blankets, cloth covers, buckets, long-handled axes, hatchets, saws, hammers, ladders, poles, iron tools and sponges.

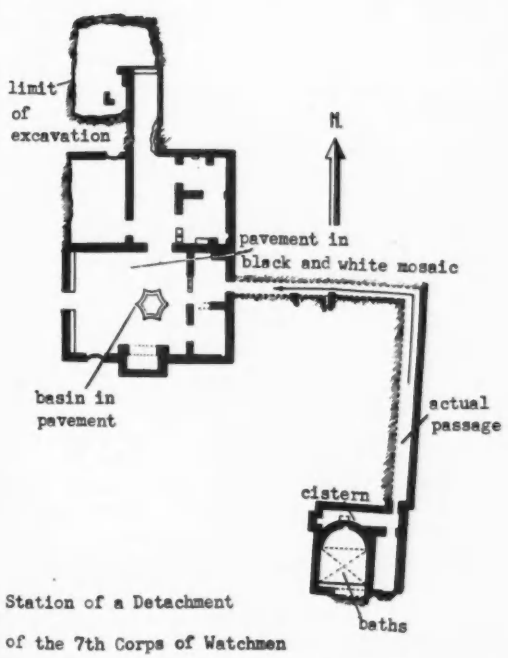
The blankets (covers consisting of a rough mixture of hair and wool) were first used at fires. After having been soaked with water or vinegar, these covers were used to protect houses in the vicinity of a fire. Each foresighted family, in addition to having household utensils, was also prepared with these covers and vinegar to stop any fire which might start.

The buckets were used to haul water. With the axes they demolished those parts in flames or those parts which could catch on fire, so that the fire would not spread. Hatchets, saws and hammers were used for the same purpose.

In order to cover the building with the water-soaked blankets, the watchmen had ladders and poles. Long-handled iron implements, having a pointed end and shaped like a spade on the other end, were used for demolition purposes. Sponges were also used to put out fires.

The Watchmen of Ostia

The old port of Rome on the Tiber River, which had been flourishing at the beginning of the Empire, had been gradually sinking, and could accommodate only the old merchant ships. Ostia was taking over Rome's commerce and trade and was growing into a large city. In the year 42 B.C., however, Emperor Claudio commenced work on a new port, which had been visualized by Caesar. This work took twelve years to complete, at considerable expense, and was all artificially excavated on the right bank of the Tiber. It was inaugurated by Nero in 54 B.C. In spite of its original vastness, Trajan had to enlarge it by adding an internal basin, digging and lengthening the channels of communication between the port and the river.



Station of a Detachment of the 7th Corps of Watchmen

A number of excavations in the vicinity of Rome have disclosed remains of buildings such as the above. Here was stationed a detachment of the 7th Corps of Watchmen, and evidence was found in one of these stations of a small 2-wheeled vehicle. Student watchmen also were housed in this building undergoing training until they were proficient enough to serve as full-time watchmen.

Connected to the port by means of a road, Ostia flourished and prospered through commerce, which gave her splendor and wealth for the duration of the empire.

In addition to immense quantities of provisions, all the tributes that the many rich provinces of the empire sent to the capital for the enjoyment of the court — marble, rare materials, precious carpets, spices, perfumes, jewels, pearls, plants and exotic fauna — were unloaded at Ostia.

Ostia was a smiling and pleasant city leading an existence like that of Rome. It was well provided, supplies and stores were received and distributed, and there was a variety of goods in the huge public and the many public storehouses. The supply of wheat stored would have been enough for seven years.

All this wealth necessitated keen surveillance, so that when Claudio made changes and enlarged the Board of Administration, he gave them a group of watchmen with the same duties and assignments as that of the Romans. The mode of living of the 100,000 inhabitants of this city of port traffic certainly required constant alertness on the part of the 700 watchmen furnished in rotation by the Divisions of Rome and responsible to the Central Command.

The excavations at Ostia have furnished material that make us certain of this existence and permit accurate reconstruction of the attributes and living habits of the watchmen in old Rome.

The Station of Ostia was an aristocratic type building, evidently a private home before it was requisitioned for use by the government in the last days of the reign of Adrian. Four streets lead into it. On the wide, decorated doors can be seen engravings of soldiers, and on either side mosaics of two wine bearers. It is a rectangular construction of 91.55 by 69.40 meters (approximately 300 by 227 feet), with a great porticoed courtyard which leads into rooms inside. An inscription reads that it was remodeled under Settimio Severo, when the large windows typical of the houses of Ostia were closed, leaving only a rifle opening typical of military Rome. On the west, a series of shops, later incorporated in the quarters of the watchmen, faced it. The house had three entrances, two of which were later closed, leaving the one on the east side open.

Among the rooms on the ground floor was located a shrine for the worship of the emperors, where remain the pedestals of the statues of Antonino Pio, Marcus Aurelius, Lucio Vero and Settimio Severo. In front there was a white and black mosaic, on which can be seen a priest near an altar towards which a fatted calf, destined for sacrifice, is being driven. It is believed that each guardhouse of the watchmen had a similar shrine for imperial worship. The rooms on the west were perhaps reserved for the administration, while the small courtyard in back of the shrine is believed to have been for the purpose of giving light to those rooms.

The site north of the shrine (Raynolds has revealed) has a threshold of simulated marble, which is deeply engraved with ruts resembling those made by wheels

and which, it is supposed, could be wheels of the fire vehicle. However, he observes that the only exit possible for a carriage was the large door on the east, on which threshold no traces can be found.

Bearing in mind the type of activities, the many long and narrow rooms, and allowing a medium distribution of 10 men per room, the station could accommodate 600 men. Some of the inscriptions recall the name of one of the watchmen whose duty it was to distribute provisions, the solemn funeral of a watchman who died in a fire, successfully completed operations, dedications to the reigning emperor, etc.

After Adrian, the watchmen remained in Ostia for two more centuries. The group was under the command of a tribune commanding the Cohort. A Subprefect traveled back and forth to Ostia part of the year and, during his absence, a Keeper of the Cohort, commanded by Rome, took his place. The group would remain in Ostia four months, the changes being effective in the middle of April, August and September.

The group was composed of four companies of 100 men each chosen from the several cohorts of Rome.

Festivities and Rituals

The watchmen of Ostia, like those of Rome, worshiped Vulcan, god of fire. The feast of this god was celebrated each September in the Circo Flaminio by throwing live fish into fire. They also worshipped Ops Opifera, protectress of the wheat storehouses.

The importance of the imperial worship has been demonstrated by the dominating position of the "Augusteum" or shrine in the guardhouse at Ostia and the great number of dedications to the emperor found in the excavations.

An interesting inscription recalls the watchmen's games, in 212 B.C., in competition with men from the Imperial Fleet of Miseno, who were quartered in Rome, games which were so popular that they were later repeated, perhaps for the birth of Caracalla.

Sparky Calendar

The original painting of the forthcoming 1958 Sparky Calendar recently was presented to NFPA General Manager Percy Bugbee. The oil painting was used for the 1958 Sparky Calendar series published by the Osborne-Kemper-Thomas Company of Cincinnati, Ohio. Shown above, left to right, are: Percy Bugbee, Earle E. Court, George W. Silsby, Mrs. Margaret Kurth, and Azro G. Maxham, all representatives of Osborne-Kemper-Thomas.

New Station in Anoka

CHIEF F. H. Smith, who heads the Fire Department in Anoka, Minnesota, reports that his Department recently moved into the new fire station shown above. The station is part of the $635,000 City Hall building donated to the City of Anoka by Charles Horn, president of the Federation Cartridge Company in that city. In addition to housing Fire Department Headquarters, the building also includes Police Headquarters and other municipal offices.

Apparatus of the Anoka Fire Department includes a 1951 GMC "Quad" 750 gpm pumper which carries 274 feet of aluminum ladders, a 1954 Seagrave 1,000 gpm pumper, a 1946 International rural truck with a 500-gal. booster tank and a 200 gpm pump, a 600 gpm pump mounted on a 1940 Studebaker truck chassis, a 500 gpm pump mounted on a 1927 Willis chassis (the Department's first motorized pumper), a 1954 Cadillac ambulance, and a rescue boat and trailer. In addition to Chief Smith, officers of the Department include Asst. Chief Walter Weinhold, President T. F. Ward, Secretary T. P. Wuest and Treasurer Lauren Turnquist.

New Extinguishing Agent

AVIATION BULLETIN No. 193, issued in October, 1957 by the NFPA Committee on Aviation and Airport Fire Protection, calls attention to a new extinguishing agent for magnesium fires.

The bulletin reports that the Bureau of Aeronautics, Department of the Navy, has recently supplied its air stations with trimethoxyboroxine, which the Navy calls "TMB." It is supplied in a pressurized 2½-gal. portable extinguisher of standard type. Two of these extinguishers are in the auxiliary equipment of the new Navy Type MB-5 aircraft fire and rescue truck.

Laboratory and field fire tests have produced evidence that TMB promises to be the most efficient nontoxic metal of fire extinguishing agents available to the crash fire fighter. The liquid has good range, can penetrate into difficult areas and can be applied on vertical as well as horizontal surfaces.

Bulletin No. 193 gives a detailed report on the chemical composition of trimethoxyboroxine, its characteristics, its use on magnesium fires, and limitations and precautions to be considered. It also mentions the new Navy TMB extinguisher and its care and maintenance. The bulletin also includes reference to other magnesium extinguishing agents now in use. Copies of Aviation Bulletin No. 193 are 50¢ each. Discounts are allowed for quantity purchases.

Chief Clarke Retires

DEPUTY Fire Commissioner Joseph M. Clarke, of the Philadelphia, Pennsylvania, Fire Department has retired after 31 years of service. He was appointed Deputy Commissioner for Fire Prevention in 1956 by Fire Commissioner Frank M. McNamee.

Chief Clarke was instrumental in coordinating the work of the Fire Prevention Task Force, a group of specially trained fire fighters who teach fire safety to commercial, industrial and civic organizations and supervises the Junior Fire Department in public and parochial schools.

Chief Clarke was appointed as a Philadelphia fire fighter in 1926; was promoted to lieutenant in 1939, to captain in 1942 and to battalion chief in 1946. In 1953 he topped the civil service list for a newly created administrative post of assistant chief and two years later was made deputy commissioner.

Deputy Chief William J. Eckles, Philadelphia's Fire Marshal since 1954, has succeeded Chief Clarke as Deputy Fire Commissioner in charge of Fire Prevention.

Joe Fetters Appointed

JOSEPH I. FETTERS, Chairman of the NFPA Committee on Firemen's Training, has been appointed to the University of Illinois faculty as extension specialist in firemanship. He brings a broad background of firemanship training and fire department service. For the past five years he has headed the firemanship training program at the University of Missouri and previously had served at the University of Nebraska for 12 years, heading the state-wide training program sponsored by the State Department of Vocational Education.

In addition, he was a member of the Mishawaka, Indiana, Fire Department for 15 years, 5 of them as chief.

At the University of Illinois he will take charge of the instructional program and demonstrations, as well as the district firemen's training school. His appointment followed the establishment of a new contract between the University and the State Fire Marshal's Office. The contract provides $70,000 for firemen's training.

CAIRNS HELMETS

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Avail yourself of the many advantages of buying ALL your personal equipment, from head to foot, from one dependable source — from a firm that assumes responsibility for the quality of EVERY item, and that stands back of it with a reputation gained in serving firemen for more than a hundred years. . . . Here is a partial list of the equipment we can supply, promptly. Many other items are described in our Catalog, sent on request.

FOR THE DEPARTMENT,

SECRETARY'S RECORD BOOKS
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SINCE 1836

What to Do about

AMBULANCE SERVICE

Part I

Here are some important items for consideration by volunteer fire departments which provide ambulance service to their communities. The experience of fire departments reporting for this article emphasizes the important factors of liability and written instructions for ambulance personnel. Also essential are first-aid training and the proper function of the ambulance squad in relation to fire department operations. The second part of this article will appear in the December, 1957 issue of FIREMEN magazine.

THE September, 1957, issue of FIREMEN magazine contained a request for information on how volunteer fire departments handle ambulance service. Chief Fred Stroiney, who heads the Hazardville, Connecticut, Fire Department, asked for the opinions of FIREMEN readers on this topic. Basically, his questions were:

How and by whom is the ambulance manned?

What is the liability to the fire department and the individual men in this type of work?

What rules and regulations govern operation of the ambulance?

Some interesting answers were received by the editors and are summarized on these pages. Volunteer fire departments who are operating ambulances are again requested to report their experiences to FIREMEN magazine, since readers have expressed considerable interest in the topic.

One of the first responses to the September issue inquiry came from Chief Ralph E. Tupper, Sr., who commands the fire department in North Wilbraham, Massachusetts, a community of about 3,000 population. Chief Tupper reported:

Since 1952, under my supervision, we have had a vehicle which can transport two patients and carries all kinds of first aid equipment, including an Emerson resuscitator and five tanks of oxygen. One tank is "hospital" size and is manned by our firemen, who are all advanced "first aiders." They take a refresher course yearly.

The word "ambulance" does not appear on the vehicle, but only "Wilbraham Fire Department Emergency."

My personal opinion is that a volunteer fire department should cope with emergencies and life saving but not ambulance service. Up to this writing, this year we have had over 60 runs, all emergencies, and turned down more than that which were ambulance runs (just transporting a patient to the hospital). A survey of our emergency runs this year shows that response was made to auto accidents, home accidents, industrial accidents, drownings, suicides, babies and heart cases. We use a tremendous amount of oxygen.

As a supplement to his letter, Chief Tupper submitted the regulations established by his Department. These give fire department personnel the responsibility for deciding if the emergency situation warrants use of the ambulance.

The Wilbraham Fire Department Emergency Vehicle will be available under the following conditions:

1. At the personal request of any physician for any patient with an illness or injury, the nature of which requires immediate removal to a hospital or a similar institution for emergency treatment, or for any condition where a delay in seeking other means of transportation would occasion unnecessary suffering.

2. At the personal request of any physician for any patient with an illness or injury, the nature of which necessitates the emergency resuscitator, oxygen, or other similar equipment that is now or may later become available.

3. At the request of anyone, when a physician is unavailable, to aid a severely injured person. However, at the scene of the accident any decision regarding the use of the emergency vehicle or its equipment will be the sole responsibility of the fire department members present and shall be based entirely upon the best principles of first aid.

4. At the request of the Selectmen or their representatives for the transfer of a non-emergency patient whose transportation is the financial responsibility of the Town of Wilbraham. This use will be scheduled for those times when the withdrawal of volunteer fire personnel from a standby fire-call status will least reduce the fire fighting potential of the Department. However, if the situation at the time of the request or at any time before actual compliance should be such that the Town's best interests would *not* be thus served, the time should be re-scheduled for another date or other arrangements should be made by the Town Office.

5. At the direction of the Fire Department when its use as an auxiliary fire vehicle seems indicated.

6. At the request of Civil Defense for practice exercises or at the time of disaster.

Another letter was received from Chief F. H. Smith of the Anoka, Minnesota, Fire Department. (See story on page 24). His Department organized a first aid squad in 1934 with only an inhalator, two stretchers and minor equipment. Since four major U.S. highways pass through Anoka, the rescue squad received numerous calls for automobile accidents and the patients had to be transported to the hospitals in Minneapolis, 25 miles away. Since those early days, the Department has had four ambulances, the latest a 1955 Cadillac equipped with four stretchers, oxygen equipment and other essentials. The rescue squad, now commanded by Captain A. R. Meister, averages about 300 calls per year. A nominal charge is made for transporting patients to Minneapolis and the rescue personnel who make these trips receive a small fee based upon mileage covered. The squad also has a well-equipped rescue boat powered by a 10 HP motor and used for rescue operations on rivers and lakes in the vicinity. All squad members have completed Red Cross first aid training courses.

Also replying to Chief Stroiney's inquiry was R. C. Appeld, Clerk, Board of Fire Officers, of the Hills-

dale, New Jersey, Fire Department, who has had 25 years of fire department service, several as Chief. His letter describing Hillsdale Firemen's Ambulance Service, Inc., is summarized below.

The first important step in organizing ambulance service is to compile rules and regulations. The next step is to raise funds for an ambulance and possibly a separate new headquarters. When we began our rescue squad we decided to get a good start with a new ambulance and our townspeople responded nobly in raising funds for the project.

We added a wing to our headquarters from funds left over from our ambulance purchase.

While organizing the ambulance service, we also arranged for classes in required Red Cross training and the American Red Cross furnished three instructors.

Our ambulance service, fully insured, is a separate unit from the Fire Department but is incorporated into the Department. Half of the ambulance squad is made up of active fire fighters, while other members are from the Ladies Auxiliary, the local American Legion Post and the Auxiliary Police Department. Our ambulance service is divided into groups, or teams, of two or three persons.

Several local physicians as well as a professional oxygen therapist also serve and we have a Methodist minister on active duty one day each week.

He also pointed out that the squad has membership in the New Jersey State First Aid Council which has about 200 member squads. The Council holds an annual 6-week First Aid Seminar which has proven to be both popular and informative. The member squads also have arranged to confine their operations to a 50-mile limit, relaying patients in a "mutual aid" system when travel beyond the 50 miles is necessary.

Hillsdale's ambulance service operates under a strict constitution and set of by-laws printed on ten 8½- by 11-in. sheets. The detailed instructions for ambulance operation are:

No one shall be permitted to remove the ambulance from Headquarters unless first calling the Police Department and telling them where, when and why it is being taken out.

No one shall be permitted to remove the ambulance or any of the equipment of the Service from Headquarters without permission of an officer of the Service.

Upon returning from a duty call the crew shall make up the cot with clean linen and also clean the inside of the ambulance and any equipment that has been used.

Upon leaving Headquarters at night, all lights shall be turned off except the one over the outside door, which shall be on at all times at night.

No crew shall transport any contagious or psychopathic cases without permission of the Captain or President of the Ambulance Service.

Any crew finding anything wrong with the ambulance shall make out a report and leave it in the mechanic's drawer at the desk.

The mechanic shall be responsible for keeping the ambulance full of gas, oil and water. Also the tires and battery will be checked by him. He will also be responsible for putting the chains on if the weather calls for it. He will be responsible for service of the ambulance as for greasing, oil changes and winterizing it. He will report to the Captain any repairs that are needed. He will see that the lights are in good working order at all times.

The crew that works the tour of duty on Sunday shall be responsible for cleaning the ambulance inside and out on Sunday morning.

All crews shall at all times be in close contact with the Police Department while on a tour of duty.

No crew shall take any call further than a radius of twenty (20) miles from Hillsdale unless given special permission from the Captain or President of the Ambulance Service.

Flashing Red Lights to front or side and *siren*, will only be used in responding to and handling an *Emergency* call. At any other time, siren and flashing red lights to front and side will be extinguished and control pedal will be pushed in to permit use of horn only. This means, in any so-called *transportation*, also on returning from delivery of patient, or when ambulance is out on any other official business other than *Emergencies;* RED LIGHTS AND SIREN WILL NOT BE USED. Drivers are expected to use their good judgment in case an emergency arises during a transportation or at any other time when an emergency should arise, and make use of the red flashing lights and siren.

Drivers shall be aware of the fact, that by using the red flashing lights and the siren they are only asking for the right of way and may EXPECT the public to grant said right of way to them. Legal speed limits will be maintained at all times, and all stop street signs and traffic lights will be respected at all times.

Any crew having an accident of any kind shall make out a full report and notify the Captain as soon as possible.

All record slips shall be turned in upon returning to Headquarters, with as much information completed as possible, including mileage reading.

No one shall drive the ambulance unless he is an authorized driver, or unless the Captain gives special permission to any other person to do so.

Any crew using oxygen shall be responsible for having the tanks refilled (if needed) or notifying the Captain or Lieutenant that they need refilling as soon as possible.

The Day Tour will be from 6:00 A.M. to 7:00 P.M. on weekdays, and the Night Tour will be from 7:00 P.M. to 6:00 A.M. on weekdays. Saturday and Sunday, the tour will be 24 hours, from 6:00 A.M. to 6:00 A.M.

One of the most interesting reports on ambulance operation came from Assistant Chief Roy East of the Columbus Manor, Illinois, Volunteer Fire Department. He has been a member of the Department for 19 years, has taught first aid and rescue in the firemen's training program of the University of Illinois extension program, is a Red Cross instructor and a former ambulance captain. His report will be discussed in a forthcoming issue of FIREMEN magazine, but here are a few items he stresses because of the experience of the Columbus Manor Volunteer Fire Department.

Any volunteer group operating an ambulance must have complete and adequate insurance coverage for passengers, ambulance squad personnel and for any personal or property damage that could occur. The Department and individuals must be fully protected against liability.

The Columbus Manor squad performs all services for the public without charging a fee. However, donations for services are accepted. The Department has had excellent response to fund raising activities since the ambulance actually serves eight communities and the citizens have expressed appreciation by donating the necessary money when equipment or a new vehicle were needed.

Members of the rescue squad hold an election each year to vote for a squad leader and assistant squad leader. Men who are elected must have Red Cross first aid cards and are in charge of the ambulance, iron lung and all other first aid equipment.

(*To be continued*)

Large Hose for Rural Fires

by Warren Y. Kimball
Manager, NFPA Fire Services Dept.
Editor, FIREMEN Magazine

IN MANY areas of the United States and Canada rural fire departments have been equipped with pumping engines capable of delivering at least 500 (U.S.) gallons per minute. However, water supplies for fighting rural fires, which cannot be handled by tank apparatus, are chiefly in the nature of static sources such as streams, ponds and cisterns frequently located at considerable distances from the structures to be protected.

This means that the output of pumpers is largely limited by the delivery capability of the available fire hose. In turn, the delivery capability of the hose is limited because of pressure loss occurring with a given flow through the length of lines required.

For a number of years the largest common size of hose used for discharge of water from rural pumpers has been 2½-in. nominal internal diameter hose with rubber lining. This hose is capable of carrying approximately 200 gpm for 1,000 ft. with a pressure loss of 100 pounds. A pump discharging at 150 pounds would thus provide 50 pounds nozzle pressure which may or may not be sufficient depending upon circumstances, such as the type of fire or type of nozzle employed.

Now, if we have sufficient hose to lay two such lines, the 500 gpm pumper can easily supply the required volume and pressure for nozzles on lines up to 1,000 ft. long. Frequently, the fire is more than 1,000 feet away and correspondingly higher pump pressures are needed to move 200 gpm per line.

For example, with 1,500 ft. of hose, pressure loss in the line would be 150 pounds. At least 200 pounds would be needed at the pump to provide nozzle pressure.

Pressures much above 200 pounds are not advisable for rural fire fighting, for failure of a single length of hose could be disastrous to the entire fire fighting operation. Suppose we have a situation with a fire 1,500 ft. away from the source of water supply, with a pump capable of delivering 500 gpm, but with insufficient hose capacity to utilize half of the pumping potential.

We can move the water further with 2½-in. hose if we reduce the volume, and the resulting loss per line, or we can use a second pumper in a relay to boost the pressure. In the first operation we deliver less water on the fire. In the second with two pumpers, we use at least 1,000 gpm pumping capacity to move 200 gpm and thus obtain perhaps 20 percent of the pumping potential that we should be able to apply to the fire problem.

In recent years several progressive rural fire fighters have applied themselves to this problem. They recognize that excessive hose line losses when using 2½-in. hose is the fundamental difficulty accounting for loss of more than two-thirds of the pump energy output.

One of the leaders in developing new rural fire fighting techniques is Chief A. Morrison Ennis of the Brooklyn, Connecticut, Volunteer Fire Department. Chief Ennis has reasoned that if larger diameter hose having lower pressure losses per flow is good for city fire fighting where lines are relatively short, it is even more desirable in rural fire fighting where pressure losses in hose are often critical and severely curtail the efficient use of available pumpers. Until recently larger diameters of hose were of very heavy construction, designed to supply extra large volumes for large city fires. Now, however, lighter weight fire hose and lighter weight couplings have been made available which makes it feasible to consider carrying such hose on rural apparatus for the purpose of reduction of unnecessary loss of pressure in long lines.

Table A shows expected pressure losses with rubber-lined hose of various diameters. With 250 gpm through 1,000 ft. of 2½-in. hose we lose 150 pounds excluding required nozzle pressures. By increasing hose diameter to 2¾ in. as used in some West Coast fire departments, the line loss drops to under 100 pounds. By going to 3-in. hose, we move the same flow at 58 pounds loss. With 3½-in. hose we cut the line loss to about 26 pounds.

Now some might reason that the 3-in. line with a loss of 58 pounds at 250 gpm would be ample for rural fire fighting. Chief Ennis considered this carefully and at each regular meeting of the Brooklyn fire company gave the members a hydraulic problem concerned with fighting rural fires. The conclusion was that the only practical solution was to go "whole hog" and have a single line that would carry the output of a 500 gpm pumper 1,000 ft. with a loss of not over 100 pounds. This the 3½-in. hose can do.

There is another significant advantage in the 3½-in. hose for rural fire fighting. That is in its use as a supply line between a portable pump

TABLE A

Pressure Loss Per 1,000 Feet Rubber-Lined Fire Hose

GPM	2½-in.	2¾-in.	3-in.	3½-in.
250	150	96	58	26
350	284	171	110	49
400	—	217	141	63
500	—	—	212	95

TABLE B

Comparative Lengths of Hose which Produce 100 psi Friction Loss

Flow	2½-in.	3-in.	3½-in.
250	667	1,700	3,861
500	182	471	1,054
750	—	222	496

Approximately 100 lbs. friction loss will result from moving the quantities of water in left column, the distances listed under the three sizes of fire hose (disregarding nozzle pressure).

and the pumper. As is well known, the standard portable pump for fire department work (NFPA Standard 191) will discharge 60 gpm at 90 pounds, or 100 gpm at 60 pounds. The relatively small engine, perhaps 7 horsepower, limits the output in pounds of water or pounds of pressure. The use of the larger hose reduces the pressure loss in the line to insignificant proportions so that the limited engine power can be employed in obtaining maximum output at which the portable centrifugal pump is capable of perhaps 20 to 30 pounds discharge pressure. Thus the standard portable pump is able to discharge 200 gpm or more. Departments having only the small rotary gear type portable pumps used in forestry service would, of course, obtain no significant increase in volume delivery by use of the larger hose.

Nevertheless, using the 3½-in. hose will permit a 500 gpm pumper to move 500 gpm 1,000 ft. through a single line with moderate pump pressures which will not endanger the hose or will permit moving 350 gpm (70 percent of capacity) for distances of half a mile or more.

Where two pumpers carrying large hose are used, one pumps from the source of supply usually to a portable tank or reservoir, and the other discharges on the fire with appropriate lines and pressures.

Outdoor Storage

FIRE Record Bulletin FR 57–3 "Outdoor Storage" is a new 16-page illustrated, 8½- by 11-in. bulletin. It contains brief reports of 63 fires involving outdoor storage and also has tables showing the causes and factors contributing to the extent of damage in 100 outdoor storage fires.

An entire page lists the recommended safe practices for outdoor storage developed by the NFPA Committee on General Storage. These recommendations cover the selection of site, material piling, fences, buildings, yard maintenance and operations, fire protection and watch service.

Copies of "Outdoor Storage" may be obtained from the NFPA Publications Department for 50¢ each with discounts allowed for quantity purchases. Ask for No. FR 57–3.

NO. 2 – CLIP AND SAVE

TRY THIS . . .

TURNABOUT BILL

THE TRICK: Hold a bill with face picture to audience. By a series of folds and unfolds, the picture mysteriously appears upside down.

HOW TO DO IT: Hold dollar bill, with picture upright, toward audience(fig. 1). Fold upper half forward and down (fig. 2). Now fold right half of bill forward and to the left (fig. 3). The bill is now folded into quarters. Fold right half of folded bill forward and to the left, forming a packet of eighths (fig. 4). Take the two corners that are toward you, and unfold to the right, as if opening a book backward (fig. 5). Take end of bill nearest you and unfold to left. Unfold the half of bill *toward* the audience, bringing up and revealing George Washington mysteriously standing on his head.

The mysterious thing about Blackinton's amazing HI-GLO badge is the way it keeps its quality Gold color finish no matter how much you polish it. This is because HI-GLO is a special metal developed by V. H. Blackinton that is solid Gold color throughout. Because of its solid Gold color, your HI-GLO badge will last years longer than ordinary Gold Plated badges.

HI-GLO

Ask your equipment supplier, or uniform manufacturer, to show you Blackinton HI-GLO badges.

BLACKINTON

Please send me your free and complete information on BLACKINTON badges.

Name.....

Street.....

City.....*State*.....

☐ I would like to know more about the new HI-GLO metal badges.

V. H. BLACKINTON & CO., INC. 130 COMMONWEALTH AVENUE ATTLEBORO FALLS, MASSACHUSETTS

INDIAN

FIRE PUMPS Complete Your Truck Equipment . . .

W. S. Darley & Co., Chicago, Ill., built the Champion Fire Apparatus truck shown above and delivered to the Addison Volunteer Fire Department. It is equipped with **INDIAN FIRE PUMPS.**

Famous **INDIAN FIRE PUMPS** are standard equipment on more and more new fire trucks. They have no equal for fighting so many types of small fires. They belong on *your* trucks, too.

"THERE IS NOTHING ELSE LIKE THEM"

"We have 6 of your **INDIAN FIRE PUMPS** on one of our fire trucks and we have used them 8 years. They are still **just like new.** They are the best things a fire department can have. I have used them for everything, including grass, house, barn, rubbish and many other kinds of fires. We like them very much. **There is nothing else like them."**

EARL L. KOCH, Assistant Chief,
Ann Arbor TWP F.D.,
Ann Arbor, Mich.

No. 90 INDIAN SLIDING PUMP TYPE

No. 80 INDIAN LEVER TYPE PUMP and HANDLE

Both types of INDIAN FIRE PUMPS are approved by UNDERWRITERS' LABORATORIES, INC.

Fire Chiefs say **INDIANS** are "worth their weight in gold."

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PACIFIC COAST BRANCHES: Hercules Equipment & Rubber Company, Inc., San Francisco 7, Calif. - Halprin Supply Co., Los Angeles 15, Calif. - Fred E. Barnett Co., Portland, Oregon; Fred E. Barnett Co., Klamath Falls, Oregon - Mill & Mine Supply, Inc., Seattle 4, Washington - L. M. Curtis & Sons, Salt Lake City, Utah ● CANADIAN AGENTS: Fleck Bros. Limited, Vancouver, B. C. - C. E. Hickey & Sons, Ltd., Hamilton - Bison Hardware Co., Toronto

Sparky TV Film Spot

A NEW full color Sparky television commercial and motion picture theater "trailer" has just been completed. The one-minute cartoon film features a new Sparky song and stresses the importance of clean-up for fire safety.

Copies are available in black and white or full color in 16mm or 35mm size. Prints may be ordered from NFPA Publications Department at the following prices: 16mm black and white — $10; 16mm color — $20; 35mm black and white — $12. A shorter 20-second portion of the 16mm black and white television film is also available for $5.

Trophy for "Hams"

NOMINATIONS are now open for the 1957 annual Edison Amateur Radio Operators' Award, sponsored by the General Electric Company, for radio amateurs who have performed an outstanding public service during 1957. The principal winner will receive a trophy and $500 at a presentation banquet in Washington, D. C. in February, 1958. Special citation winners will receive plaques.

Fire department personnel who know "hams" who have rendered such service are urged to send nominations for this contest. Letters of nomination may be submitted by any individual or group and must include the amateurs' names, addresses, radio call letters and full description of the public services rendered. Closing date for nominations is January 3, 1958, and they must be mailed to the Edison Award Committee, General Electric Company, Owensboro, Kentucky.

PROMOTIONAL STUDY COURSE for ALL RANKS

The National Preparatory Institute offers a course of instruction in Fire Prevention, Fire Protection and Fire Fighting which will help you to improve your knowledge of fire field subjects and assist you in your studies for promotion.

PRICED FOR A FIRE FIGHTER'S BUDGET!
Engine and Ladder Company procedures — inspections, hydraulics, salvage, overhauling — these and many other subjects are covered.

FOR MASSACHUSETTS FIRE FIGHTERS:
Ask for special information on Massachusetts Civil Service Examination preparation.

For further information, at no cost to you, write today to:

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338 SWEETSER TERR., EAST LYNN, MASS.

Ontario Fire College

This large structure will serve as the main building of the College. Separate buildings are available for the Director, for the staff and for administration of the training schedule.

ONTARIO Fire Marshal W. J. Scott reports that construction of a fire college in that Province has been authorized. On August 14, the Ontario Cabinet gave approval to the development of the College for advanced training of fire department officers and officer candidates. More than $100,000 has been authorized for immediate purchase of the training site and for renovation of buildings on the property.

The Ontario Fire College will be located on the outskirts of Gravenhurst, a beautiful resort area on Lake Muskoka. Fire College property will include 2,800 feet of shoreline on the lake and can be reached by car in a little more than two hours from Toronto. The property includes 120 acres, two large institutional buildings and a number of smaller buildings. Most of these can be renovated for Fire College premises, but a training tower and test fire building are planned for the future. Marshal Scott reports that he expects the Fire College will be functioning in the summer of 1958.

Portion of the lecture hall which will be renovated for the Ontario Fire College.

Planning to change address? Be sure to notify NFPA so that your subscription to FIREMEN will not be interrupted.

CLASS A PUMPERS ranging to 1000 GPM capacities with HIGH PRESSURE FOG

W. S. Darley & Co.

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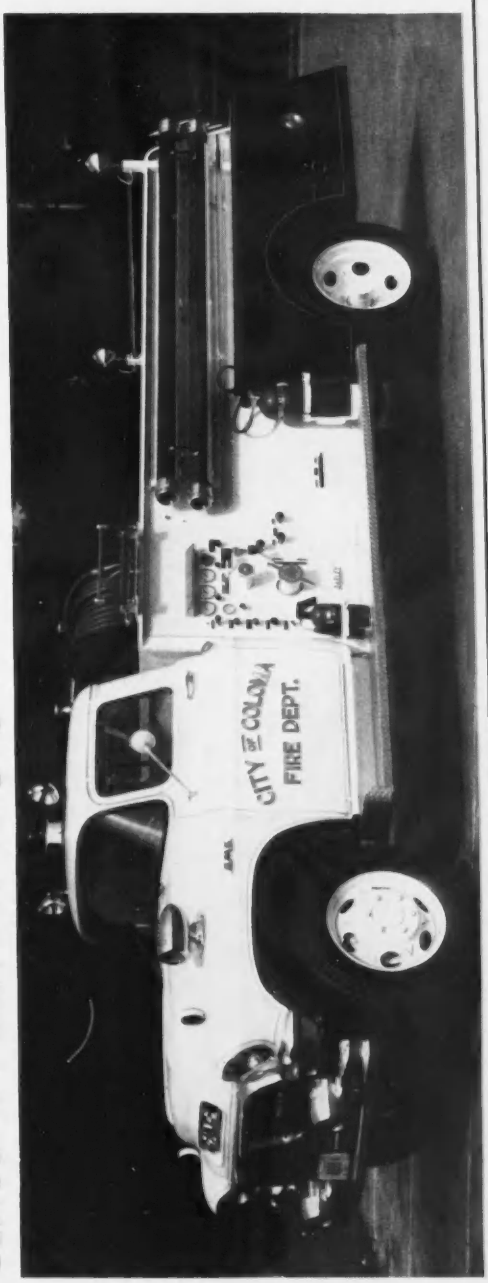
You'll want to know all about our low cost finance plan or combination PURCHASE-RENTAL plan.



Junior Fire Program Gets Results!

ONE of the most effective fire prevention and conservation programs for school children in the U.S. is being conducted in Orange County, California. Started in 1953 by California State Forest Ranger J. A. Scherman, it has won the cooperation of municipal fire chiefs, school teachers, forestry personnel and particularly the school children.

It has been reported that, since 1953, at least 85,847 home fire hazards have been corrected by the Junior Firemen and Junior Rangers who have carried out their assignments enthusiastically.

Orange County is on the coast of California, just below Los Angeles County. It has an area of 782 square miles and a population of more than 216,000. It includes a number of municipalities and considerable forested area.

Ranger Scherman, before starting his program, gave consideration to the progress made by the Los Angeles and Los Angeles County Fire Departments, with respect to teaching school children. He then planned a special educational program directed toward the interests of children of the fifth grade level. With the cooperation of Assistant Ranger Carl Downs and Linton T. Simmons, Orange County Superintendent of Schools, he prepared a fire prevention instruction program to last from year to year. This would incorporate fire prevention principles for municipalities as well as for rural and forested areas. Superintendent Simmons called a meeting of fifth- and sixth-grade school teachers to get their cooperation in the program. It was decided that two basic manuals would be useful — one for the students and an instructional manual for the teachers. Teaching personnel were appointed to serve on committees and prepare sections on each booklet.

The manual prepared for the pupils is called "You Against Fire." It is a 6- by 9-in. well-illustrated paper-bound book with 102 pages. The first section is devoted to forest fires and resultant devastation, sound fire prevention practices, what to do when forest or brush fires start, and the basic principles of fighting forest fires. The second section describes methods of replanting and other conservation practices after forest fires have occurred. The third part of this book is devoted completely to fire prevention in the home and makes good use of Sparky the Fire Dog and other fire prevention information published by NFPA.

The teacher's manual is an 8½- by 11-in., 142-page, illustrated booklet also divided in three sections. It contains some excellent teachers' material on suggested activities for school children, information for answering possible questions of students, and an excellent bibliography of books and visual aids which

POSITIVE CONTROL!

for You FIREMEN

All controls are at the pump panel, a big feature in this newest equipment by Sharpsville.

Other features:

- Two high pressure fog guns with hose
- Two 1½" preconnected lines
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For information on equipment to your specs, write . . .

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BUILDERS OF SERVICE, CRASH AND LADDER TRUCKS • VOLUME AND HIGH-PRESSURE PUMPERS • SQUAD AND EMERGENCY CARS • STORAGE TANKS

Members of the Tustin Fire Department and the California Division of Forestry present a demonstration for some Junior Rangers.

teachers can use in the fire prevention classes. The book is designed so that a teacher can present instruction section by section to match with the material contained in "You Against Fire."

Naturally, such an extensive program is expensive. It was estimated that more than $11,000 would be needed for the fiscal year 1957–58. However, through California legislation, planned costs for instructional material that will help the cause of conservation can be absorbed in the Orange County Forestry Division's budget. Additional financial interest has been given to Ranger Scherman's program by the Orange County Farmers Mutual Fire Insurance Company, the Sears Roebuck Foundation (which paid for the badges), and the Kwickset Lock Company of Anaheim, which helped out the Anaheim Fire Department in purchasing badges and other material.

Another important feature of the education program is the training conducted on a county-wide basis for school teachers, principals and administrators. In addition, a complete outline of the suggested program sequence has been mimeographed for use by all participating fire chiefs and members of the various committees. This describes how to start the fire prevention program for school children in a municipality or in the unprotected rural areas; how to use the instructional materials; and how to obtain firemen's badges and other equipment.

The educational program was designed primarily for use in schools in the unincorporated area of Orange County, which received fire protection from the California Division of Forestry. Yet, it was also offered to schools in municipalities so that the education could be carried out under the direction of the local fire chief. Fire departments accepting the invitation included the cities of Anaheim, Unipark, Brea, Buena Park, Costa Mesa, Fullerton, Garden Grove, Huntington Beach, La-Habre, Newport Beach, Orange, San Clemente, Santa Ana, Seal Beach and Tustin. Within these cities it is known as the "Junior Firemen Program," while in the County's rural area, it is called the "Junior Ranger Program." Sparky the Fire Dog and Smokey the Bear are featured prominently in the fire prevention instructional materials.

California State Forest Ranger J. A. Scherman who started the fire prevention education program that now flourishes throughout Orange County.

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Better today than ever before in our 78 years of fine badge making—better through employment of latest techniques plus greater experience. We offer the widest selection of badge designs—all available in a wealth of excellent materials. Any badge you want can be had in nickel, chromium, rhodium, sterling silver, gold plate, perma-glo, gold filled and 14 kt gold.

There is no substitute for top quality and experience and you get both at Braxmar.

Send for new price list on badges illustrated in our Diamond Jubilee Catalog.

THE C. G. BRAXMAR CO., INC.
DEPT. P
216 East 45th Street
New York 17, New York

Attractive gold-colored badges are awarded to the Junior Rangers and Firemen who complete the training courses. An example of the children's high interest is the fact that, in one year, 3,571 boys and girls enrolled and 3,015 completed required activities and received badges and diplomas.

Last year, fire department personnel of the above municipalities and members of the Forestry Division made several hundred appearances in the schools. At least 51 meetings were held with various groups of teachers to provide teacher training and to answer questions regarding the program. In turn, 2,326 children made 67 visits to the various fire stations. Nearly 120,000 pieces of fire prevention and conservation literature were passed out during the year.

(Right) Each student who completes the fire prevention course requirements receives this card featuring Smokey the Bear and Sparky the Fire Dog.

Accurate records have been kept of the fire hazard corrections made by the youngsters as well as the fire losses. In the first six months of 1954, shortly after the program was launched, fire prevention and suppression agencies reported a general average reduction of approximately 20 percent in the number of fires in the County. There was a 24 percent reduction in the number of structural fires in rural Orange County despite a 10 percent rise in population. It was estimated that in the six-month period, property damage loss due to fire was reduced $319,000.

The Orange County Junior Fire Program has been well received by educators, students and parents, as well as by fire service members participating. About 14,500 fifth-grade boys and girls are expected to take part in the program during 1957–58. Below are quoted excerpts from the letters directed to the various fire chiefs and forestry personnel responsible for the program.

From a superintendent of the Orange Unified Fire District . . . "In our opinion this is one of the most worthwhile programs and fills an important community need in teaching children the importance of fire prevention. This, in turn, is taken home to the parents and develops a widespread knowledge for the betterment of the community."

From a participating fire chief to Carl M. Downs . . . "This program, we know beyond any doubt, has prevented many personal injuries, deaths, property loss and destruction of natural resources. In addition, and just as important, this program trains children to be better citizens and gives them an appreciation of good sportsmanship. . . . Many teachers of other than

DON'T SPECULATE-
...STEP UP
YOUR EFFICIENCY!
The accelerated tempo of modern times demands modern techniques plus stepped-up efficiency. Fire departments everywhere find the Super Vacuum Smoke Ejector provides the extra margin of efficiency necessary in modern day fire fighting. New and revolutionary in design, Super Vacuum will outperform other fans twice its size... gives the positive, controlled ventilation essential to the prompt, efficient control of fires.
CONTROL VENTILATION
...CONTROL FIRES!
The heart of the SUPER VACUUM Smoke Ejector is the patented propeller. Conventional fans produce a chopping, recirculating action. In contrast, the SUPER VACUUM propeller is a perfect spiral air screw which creates a vacuum... suction is created over the entire face of the propeller and the air or smoke is discharged in a high velocity spiral. There are no dead spots.
THE HEART OF THE SUPER VACUUM
WRITE FOR ADDITIONAL INFORMATION OR CONTACT YOUR LOCAL FIRE EQUIPMENT DEALER
MANUFACTURED BY
Super Vacuum MANUFACTURING CO.
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HOSE STORAGE AND LOADING UNIT

Saves time — Saves space

Holds 1,800 feet of 2½" hose and proportionately more of 1½" hose in an 8½' space (loading table detached). Easy, convenient to use. Roll it right up to the truck for complete hose reload — out of the way when not in use. Equipped with locking fiber-wheeled casters.

WRITE FOR FOLDER

THE CIRCUL-AIR CORPORATION

575 East Milwaukee, Detroit 2, Mich.

fifth grades have asked us to provide a program on their grade level, and the school principals and teachers have always asked us to come back. . . ."

From a principal of elementary schools . . . "We endorse the fire prevention program . . . wholeheartedly, believing that it offers educational opportunities so vital for every future citizen. . . . Each individual activity has been checked by the students, teacher and myself."

From a fire chief to Chief Ranger Scherman . . . "We were most happy to see this excellent program accepted and standardized for all the fifth graders in the various school districts throughout the County. We, within the City of Orange, thought so much of the program that we hired an additional fire prevention engineer to present this course to the fifth graders and their teachers. . . ."

From a manufacturing firm to a fire chief . . . "You and your department are certainly to be complimented on the excellent fire prevention program presented under your auspices to the Newport Beach grammar school students. Our daughter . . . has thoroughly inspected the fire hazards of our home, and we are continuing to receive admonitions about potential hazards. . . . Your program ought to pay big dividends in the reduction of fire hazards."

The Orange County fire prevention program is one of the finest to come to the attention of FIREMEN magazine. The fact that municipal fire chiefs, forestry personnel and school teachers combined their talents to establish a good program is particularly significant. If readers know of other county-wide programs which have been developed so extensively, the information will be useful to the NFPA Public Relations Department. Of particular importance are names of participating fire chiefs and organizations.

Chief A. G. Ellis of the Brea Fire Department and Assistant State Forester Carl Downs award diplomas to boy and girl who completed fire prevention course requirements.

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your system can use more monitors

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NEED BOTH AT LOWEST COST?

your best bet is Monitoradio if your concern is:

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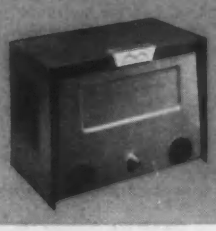
These low cost, really high-quality FM receivers are ultra-sensitive—give you clear, powerful reception even in the weakest signal area. Monitoradios allow you to expand your communication system to its highest efficiency at a cost you can afford.

the MINUTE MAN
MR-33, MR-10—Tunable FM receivers for powerful, static-free monitoring of all stations on either the 30-50 or 152-174 mc band. 3uv sensitivity. 7 tubes plus rectifier.

the SIGNAL MASTER
MRC-33, MRC-10—For the first time, a low cost crystal-controlled receiver of quality design. Pre-set to any frequency in the 25-54 or 147-174 mc bands. 2.5uv sensitivity, 8 tubes plus rectifier. Crystal included.
Both units feature powerful 5" speaker, fully tuned RF stage, built-in squelch. Housed in rugged metal cabinets. 110-120V, 60 cycle, AC only. U.L. approved. The Minute Man—$64.50. The Signal Master—$76.50.



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One man can operate the gun. It will hold in any position.

EASY TO OPERATE •
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SAFE •
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SAMUEL EASTMAN CO., INC.
CONCORD, NEW HAMPSHIRE

DEMAND

In these times of severe competition manufacturers tend to promote or substitute items that can be furnished at less cost than what is specified.

When you buy new fire apparatus you demand certain *vital* features. When you know the quality and capacity you need, do not request but *demand* that these specifications be met!

In the mass of equipment on a modern truck it's easy to overlook something—don't make this mistake with sirens and lights on your new truck.

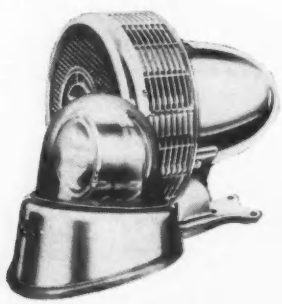
Demand a FEDERAL Class Q Coaster Siren *and* a FEDERAL BEACON Ray Light!

Lives and the investment in your apparatus depend on the protection provided by *better* signals.

Demand the best—*insist* on FEDERAL SIGNALS!

Include FEDERAL in your specifications and permit no substitutes.

Write for catalog #300 today!



FEDERAL SIGN and SIGNAL Corporation
8717 S. State St., Chicago 19, Ill.

Obtaining Maximum Flows from Pumps at Hydrants

WE HAVE pointed out previously that, when pumping from a good hydrant supply, it is possible within certain limits to increase the pressure at which a pump can supply its rated capacity, or to increase the amount of water which the pump can handle at its rated pressures.

As there are a number of times when it is desirable to obtain the maximum safe volume from a pump at a hydrant, the following suggested operating technique does not require any special calculations:

1. Connect the pumper to the hydrant with hose capable of giving full flow without appreciable pressure loss. This may be a large "soft suction," a large "hard suction," or multiple lines of adequate capacity.

2. Run sufficient lines to utilize the flow without excessive pressure loss in the hose due to friction. In general, at least three 2½-in. lines should be used even from a 500 gpm rated pumper and four or more lines may be needed from larger pumpers.

3. Nozzle sizes should be selected to utilize the flow without requiring excessive nozzle pressures which would waste pump energy. For example, we can discharge 650 gpm through a 1⅝-in. tip at 69 lbs. but 95 lbs. NP is needed for the same flow from a 1½-in. nozzle tip. This difference is approximately equal to friction loss in 100 ft. of hose supplying this stream. If we are using hand lines, the 1¼-in. tip will flow in excess of 300 gpm at 20 to 30 lbs. less than the 1⅛-in. tip. Of course, care should be taken to avoid needless friction loss in hose, too.

4. Operate the pumper at about 150 lbs. discharge pressure taking care to see that 80 percent of certified peak engine speed is not exceeded. The pump would normally be in "parallel" or volume operation. The relief valve would be set at 200 lbs. for heavy stream operation or lower if hand lines are being used. (Normally, maximum volumes would be utilized for heavy streams.)

5. If the engine comes to full throttle before an efficient engine speed for the particular apparatus is obtained, the load may be too

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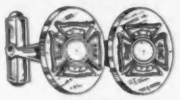
NEW CAR EMBLEM — Wins traffic courtesies. Fits all cars. Bright red, polished. 4 in. size — $1.98.



FD CUFF LINKS — Gold finish — Lacquered — Carefully Detailed Construction — Swing-swivel back for easy insertion, pair $2.50.

FD TIE CLIP — Gold Finish — Lacquered — Sturdy Alligator Clasp Back, $1.98.

FD LAPEL BUTTON — Gold finish —Lacquered. You will proudly wear, $1.50.

FIREMAN T-SHIRT $1.49 Give size.

STA-DRI CO., 6th Avenue Dept. F-10, Whitestone, N. Y.

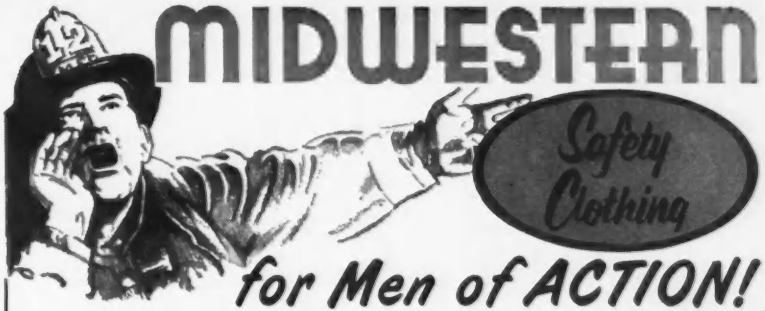
Money - back guarantee.

great and the nozzle tips, or the pressure, should be reduced to cut the demand.

If 80 percent of peak engine speed cannot be obtained, note the rpm obtained under full throttle and then reduce the rpm 10 percent to provide a power reserve. Then change tips or hose layout to reduce the load and permit proper engine speed. (Some pumpers have considerable reserve power and deliver capacity at 60–70 percent of peak engine speed but are not operating at full throttle. It is desirable to have available for reference the power curves for each pumper so that the operator can try to operate in the range that will give maximum power for pumping.)

It is true that large volumes of water may be delivered through short lines at very low pressures, but the object of this hydrant operation is to develop practical fire streams.

There is no reason for not getting the maximum safe output from pump and hydrant as long as the pump is properly operated. The fact that a machine is tested and rated at draft as a 500, 750, or 1000 gpm pump does not mean that this is the maximum volume that can be handled under all conditions. However, it must be realized that the machine can only handle larger volumes safely when aided by a hydrant or by a reduction in pressure at which the water is delivered. As in other problems with equipment, the men who know their particular pumpers best will get the most out of them without danger of overload.



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When working under hazardous conditions in smoke, fog, dust and darkness, you deserve the safety protection found only in the Midwestern Striped Safety Coat. The highly visible yellow stripes are *rubberized as part of the material* . . . not glued, painted or sewed on.

There are many imitations but no substitute for Midwestern quality, design, fabric texture and safety features. For complete information see your Midwestern dealer. A letter to the factory will also bring you literature and materials for your inspection.

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Manufacturers of the Famous **MACKINAW Safety Coats**

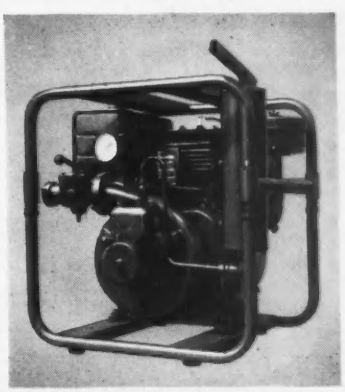
Fight Brush Fires From Moving Truck with a *Hale Type FZZ* Portable Pumping Unit!*

Picture below shows fire fighter handling stream from a Hale Type FZZ Portable Pumping Unit mounted on a moving truck. An FZZ can be mounted permanently on truck ur carried as a portable unit for pumping into or *from* booster tank. This portable arrangement is extremely useful both for fighting brush, field or forest fires while in motion; or for pumping from pond, stream or well direct.

An FZZ will supply from draft 2 capable fire streams thru 1½" lines. Performance substantially exceeds NFPA capacity and pressure requirements for portable pumps.

A frame-mounted FZZ (with carrying handles turned in) is pictured at right. Also available mounted on two wheels or on rubber-cushioned steel channels. **Note:** Discharge Adapter can be supplied for use with 2½-inch hose.

**Write today for NEW FZZ Folder. Let us know if you want a demonstration.*



HALE FIRE PUMP CO.
CONSHOHOCKEN, PA.

Fire Pumps in All Standard Capacities

NOTE:

FZZ Now Has NEW —

- **Ball-Type Valve**
- **Improved Priming**

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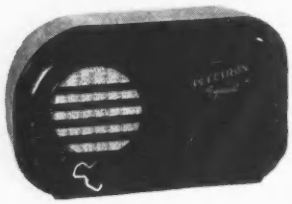

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- Crystal frequency control.
- Tone activated so the fireman HEARS ONLY the messages sent HIM.
- Push button re-set to return to "silent-standby."
- Speaker circuit is open on "silent-standby," thus eliminating ALL the noise and nuisance of a continuously monitoring receiver.
- Exclusive tone circuit eliminates "false" activation.
- High volume to at least 3 miles from transmitter.
- No rooftop antenna required.
- For assigned frequencies in the 30–50 and 152–174 mc bands.
- May be ordered for any tone from 1000 to 3000 cps.
- 6 tubes and rectifier.
- Low cost, low power consumption.
- Thousands in use by departments throughout the U. S.
- Proven by over 2 years of use and development.

Place a "Fyrcall" in each fireman's home and save time, lives, and property. Wind, insulation, and noise within will not prevent hearing this alarm. The loud, clear tone provides an excellent alarm. Send alarms over existing police or fire department transmitter.

Please Write to

PLECTRON CORPORATION
OVERTON, NEBRASKA

Membership Report

THE fire chiefs and fire departments listed below recently joined the Association. Current NFPA fire department membership now totals 2,464 fire departments and 26,641 men. These figures only include the municipal, paid, call and volunteer fire departments who subscribe to the special NFPA fire department membership plan.

NFPA members in industry who subscribe to this magazine are reminded that it can also be obtained for industrial fire brigades. At present 275 industrial fire brigades have membership in NFPA and obtained 2,745 subscriptions to FIREMEN magazine for their members. For such brigades any number of subscriptions may be obtained for $2 each, in addition to the regular NFPA membership dues.

Readers who want to assist in the promotion of NFPA membership by encouraging industrial fire brigades to make use of material published by the Association can contact the NFPA Fire Services Department. Promotional literature and application blanks will be made available for this purpose.

NFPA Welcomes the following chiefs and fire departments who recently have joined the Association:

Alberta: Chief Wayne Stanyer, Sherwood Park Fire Department, Sherwood Park.

Florida: St. Augustine Fire Department, St. Augustine.

Iowa: Waukee Fire Department, Waukee.

Michigan: Chief W. W. Budzynski, Fountain-Sherman Township Fire Department, Fountain.

New Jersey: West New York Fire Department, West New York.

New York: Conklin Volunteer Fire Company No. 1, Inc., Conklin.

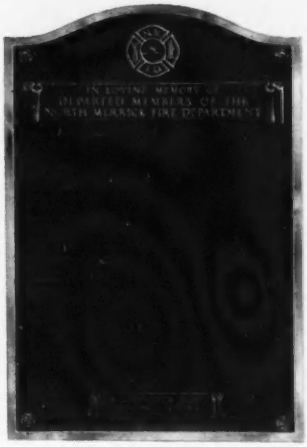
North Carolina: Chief E. E. Edney, Hendersonville Fire Department, Hendersonville.

Ohio: Chief Hector Steele, Gallipolis Volunteer Fire Department, Gallipolis.

Virginia: Chief W. R. Mumpower, Big Stone Gap Fire Department, Big Stone Gap; Springfield Volunteer Fire Department, Springfield.

West Virginia: Dunbar Fire Department, Dunbar.

Wisconsin: Chief Mathew Schneider, Lannon Volunteer Fire Department, Lannon; Somers Volunteer Fire Department, Somers.



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New ACME
Full Vision®
"SPEC" MASK

At Last . . .
GAS MASK PROTECTION
For Eye-Glass Wearers

If you wear eye glasses, you no longer have to put up with the hazard of ill-fitting gas masks worn over your regular spectacles. This exclusive new Acme "Spec" mask now gives you a face piece with all the proved Acme safety features PLUS built-in eye glasses ground to your individual prescription.

You can get the Acme "Spec" mask complete with personal lenses by sending your doctor's prescription with your order. Or, if you prefer, the mask can be furnished with stirrup, bracket and front ready for your doctor to mount your proper lenses.

Either way, you get the perfect vision, safety and comfort along with the Acme advantage of one face piece serving multiple uses.

For details on this timely Acme development, write for Bulletins No. 576 and No. 576-A (Prescription Form).

ACME PROTECTION EQUIPMENT COMPANY
1271 KALAMAZOO ST., SOUTH HAVEN, MICHIGAN

Embarrassing Inspection

AN NFPA member in Australia calls attention to a recent news item concerning fire department inspection of a motion picture theater. It seems that a fire officer was inspecting a felt curtain behind the theater screen in the company of a junior fire officer. The senior fire officer's flamelight failed, and he used the junior officer's cigarette lighter to continue his inspection. Unfortunately, his foot slipped, and the flame from the cigarette lighter ignited the felt curtain.

Eventually, the theater owner brought suit against the New South Wales Fire Board and the fire officer. Result was that the Fire Board and the officer were ordered to pay 7,321 pounds ($20,352.38), which proves, of course, that the curtain was flammable. The officer would have been spared this costly and embarrassing experience if the curtain were fire resistive as specified in NFPA No. 101 — "Building Exits Code," or flameproofed in accordance with NFPA No. 701 — "Flameproofed Textiles."

Combustible Contents

THE Bureau of Standards has issued an 8½- by 11-in. 18-page report which records the weight per square foot of combustible content in various occupancies. Fire officers and other persons interested in the study of fire loading of buildings should find the data useful. Copies may be obtained for 20 cents each by writing to the Superintendent of Documents, Washington 25, D. C. Ask for "Building Materials and Structure Report No. 149."

"All right, Farnsworth, put her back . . . PUT HER BACK!"

From one chief to another . . .

CHIEF F. TED BECKER
MONROVIA, CALIFORNIA, SAYS:

"The Cornelius high pressure air compressor is the most valuable piece of up-to-date equipment we have purchased."

Chief Becker continues: *"In October, 1956, we placed in service a Cornelius high pressure air compressor Model 130R1500. It has proven to be the answer to our air supply problem. Since placing our Cornelius compressor in service it has become second nature to don the air masks at emergencies and allow frequent drills which has instilled confidence in the men.*

"It's simplicity of operation, its portability for use anywhere, its precision construction, and its ability to replenish our air supply as needed makes it the most valuable piece of up-to-date equipment which we have purchased."

Be sure the men in your department have the protection and confidence inspired by an abundance of pure, fresh air supplied by a Cornelius compressor. Write today for FREE catalog or call your equipment distributor for a demonstration.

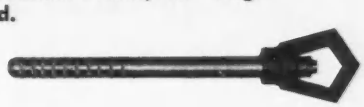
Model 130R1500 (3000 PSI)

THE Cornelius COMPANY
550 39th Avenue N.E., Minneapolis 21, Minnesota

Rugged — Adjustable
HYDRANT WRENCHES

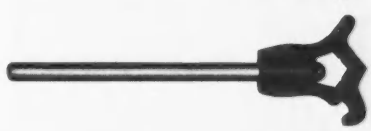
HANDLES of cold rolled steel, Cadmium Plated, 15" long.
HEADS of cast bronze, painted red.

Style 32 — Heavy duty type with reinforced head for extra strength and 1" OD handle knurled for better grip.



Style 33 — Combination type has patented spanner head to fit all type lugs including Navy slot — ⅞" OD handle.

Style 33A — Combination type fits both pin and rocker lug couplings — ⅞" OD handle.

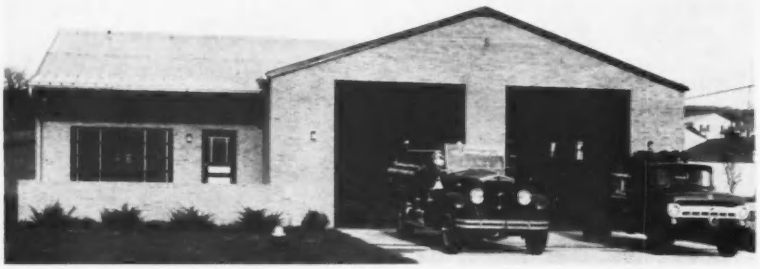


Style 34 — Hydrant house type popular with factories, mills and water works — fits pin lug coupling — ⅞" OD handle.

Boston Coupling hydrant wrenches — grip-fit pentagon nut (max. 1¾" point to flat) or square nut (max. 1¼"). Longer handles available.

Get the BEST for your Department

HOSE BRASS GOODS OF EVERY DESCRIPTION
Boston Coupling Co.
293 CONGRESS ST., BOSTON 10, MASS.



New Fire Station No. 2 of the Liberty, Missouri, Fire Department, showing 1935 American LaFrance 750 gpm pumper and a truck used for rural fires. The new 750 gpm Seagrave pumper and the aerial ladder will be housed at the headquarters station in the center of town.

New Apparatus in Liberty

THE Fire Department in Liberty, Missouri, headed by Chief Leo Jackson, recently acquired some new apparatus and a new No. 2 Fire Station. The Department in the past few years has undergone an expansion program spurred by two serious fires. Liberty, a community of 7,000 population, is the seat of Clay County and one of the leading cattle feeding areas in Missouri. The town is mainly residential with a small area of industrial buildings.

In 1955, citizens of the town approved a bond issue for a new fire station, a 750 gpm Seagrave pumper and a 75-ft. Seagrave "Quad" with a 750 gpm pump. The Department also converted a 1942 truck for rural fire fighting by mounting it on a new Ford chassis.

Chief Jackson has been with the Department for 40 years, serving the last 28 as Chief. Under him are 17 members — 6 paid personnel who man the stations and at least 11 volunteers who respond to fire alarms.

The new apparatus will be housed at the headquarters station in downtown Liberty, while the rural truck and a 1935 American-LaFrance 750 gpm pumper will be housed at the new No. 2 Fire Station.

National Fire Codes

ALL volumes of the 1957 National Fire Codes have been published and are being distributed to NFPA members who have already requested them. These books contain all of the NFPA technical standards of fire protection and include the latest revisions adopted during the recent NFPA annual meeting. (See October, 1957 FIREMEN magazine.)

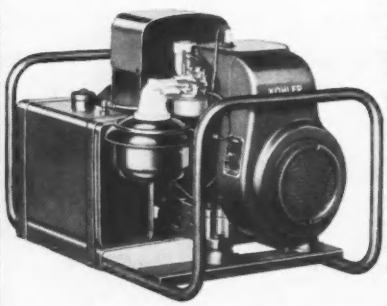
Each volume is priced at $6, but the entire set may be purchased for only $30 if ordered at one time. These clothbound books are: Vol. I, *Flammable Liquids and Gases;* Vol. II, *Combustible Solids, Dusts, Chemicals and Explosives;* Vol. III, *Building Construction and Equipment;* Vol. IV, *Extinguishment Equipment;* Vol. V, *Electrical·* Vol. VI, *Transportation and Miscellaneous.*

Code volumes may be purchased from NFPA Publications Dept.

KOHLER ELECTRIC PLANTS

Sedgwick County Fire Department rescue truck, Wichita, Kansas.

Portable power—top performance for rescue trucks, fire fighting tools, civil defense



Model 2.5M25, *2500 watts, 115 volt AC. Manual starting.*

Kohler Co., Kohler, Wisconsin
Established 1873

Smooth-running reliability has made Kohler electric plants the choice for rescue operations and fire fighting equipment the country over. Compact, portable models are used for floodlights, resuscitators, smoke eradicators, portable iron lungs, and power tools. The 2500 watt model shown has 4 receptacles, pilot light, carrying frame. Rubber-tired hand cart available. Other sizes, 500 watts to 50 KW, include stand-by models to maintain sirens, alarm signals, communications, during power failures.

For civil defense, Kohler plants operate floodlights, sound amplifiers, power tools, X-ray units for mobile hospitals. Larger sizes for air-raid sirens. Stand-by models for panic or evacuation centers. Write for folder 11-F.

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PLUMBING FIXTURES • HEATING EQUIPMENT • ELECTRIC PLANTS
AIR-COOLED ENGINES • PRECISION CONTROLS

There's *Extra Value* in AMERICAN-LAFRANCE Fire Engines . .

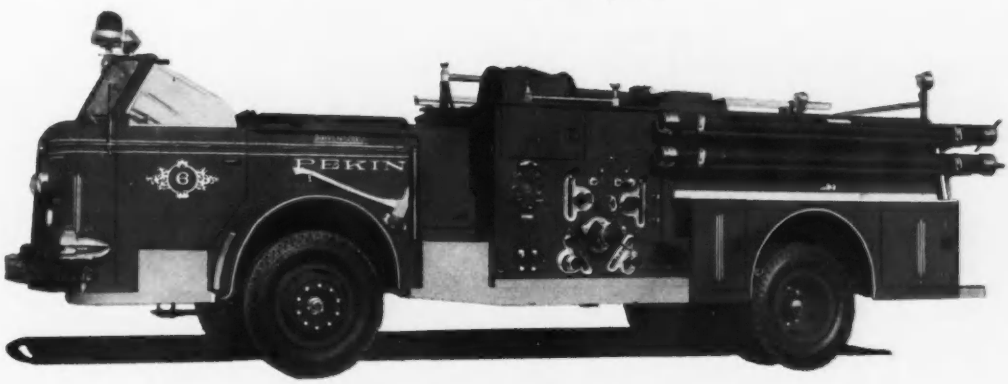
NEW, heavier chassis frame electric welded to provide maximum strength and stability

The new and heavier frame on Series 800 pumpers is a valuable feature for increased operating stability and safety. Better alignment is preserved for all operating units and less frame deflection on the roughest streets or highways.

The frame section between front and rear springs is 10½ inches deep with 2¾ inch flanges top and bottom and ¼ inch stock thickness. All cross members and stiffening gussets are also of ¼ inch stock. All members are joined by electric welding to the side members to provide a maximum of strength and torsional resistance. No rivets to loosen.

The increased section depth of the frame for greater stiffness and reduced deflection is one of the American LaFrance Extra Value features. This heavier frame is one of the Engineering developments in design to provide the fire service improved and dependable fire engines.

The frame material is high carbon steel without heat treatment. Heat treatment does not add to the stiffness, only permits a lighter section to deflect farther. Fire service experience has dictated the essential need for a frame of maximum stiffness and load carrying ability as now offered in American LaFrance Series 800 fire engines.



Sparton 1000 G.P.M. Class A Pumper

Sustaining Member, I.A.F.C.

AMERICAN LAFRANCE CORPORATION
ELMIRA, NEW YORK, U. S. A.
LAFRANCE FIRE ENGINE—FOAMITE LIMITED
TORONTO, 9, ONTARIO, CANADA

Better Hose Care-with CIRCUL-AIR
HOSE CONDITIONING EQUIPMENT
WASHERS • DRYERS • TURN-TABLES • STORAGE RACKS

FIRE HOSE DRYER

The patented, electrically operated Circul-Air hose dryer circulates pre-warmed fresh air through loosely coiled hose at the rate of 5 to 6 air changes per minute. Saves floor space, hard work and lengthens hose life. No other drying method is so fast — so economical — so easy to use. Circul-Air is the preferred drying method in over 4,000 leading Fire Departments.

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Rota-Jet AUTOMATIC FIRE HOSE WASHER
WASHES — RINSES — DRAINS HOSE

Washes, Rinses, Drains hose thoroughly and quickly. Simple, one-man operation. Ashes, dirt, mud and sludge are automatically scrubbed out and flushed away. Saves time. Lengthens hose life.
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Globe DURABLE FIREMEN'S Suits
"The Suit That Suits"

Here's Your Warmest Friend On A Cold, Wet, Run.

A Globe Suit is health insurance. Its snug, warm, weatherproof construction keeps out the wind and water. When you wear a Globe Suit you are being 100% protected. All Globe quick hitch suits have the new Neoprene* interlinings and many other exclusive features. There are several different kinds made in black, brown or white. Coats and pants may be bought separately. Write today.

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Please send me, without obligation, your FREE catalog and samples of materials used in the Globe Suits. Also the name of the Globe Dealer nearest me.

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Address.....

GLOBE MANUFACTURING CO.
PITTSFIELD, N. H.

*Made with 100% DuPont Neoprene

Endorsed by America's Fire Chiefs Everywhere Since 1901

New Radio Networks

COMMUNICATIONS of fire departments of 32 towns in southwestern New Hampshire will be connected in a new dual radio network. The two-way system, now being installed by General Electric Company, will tie in with the Tri-State Mutual Aid communication program reported in the November, 1955 issue of FIREMEN magazine. (Under this setup Massachusetts, New Hampshire and Vermont are covered by a radio network which ties in with Civil Defense and volunteer operations.)

Chief Walter R. Messer, of the Keene, New Hampshire, Fire Department, reports that the control center for the new system will be in Keene. It will feature a 150 mc unit with a repeater station in the eastern sector. A regular base station will cover the western sector.

Fire departments participating in the Tri-State network and new southwestern system operate on 33.54 and 33.78 mc. The radio equipment is being purchased through the State of New Hampshire purchasing department with FCDA matching funds appropriated by county and town agencies.

Fire Record of Motels

ANOTHER important Occupancy Fire Record has been prepared and published by the NFPA Fire Record Department. FR57–4 — "Motels" is an 8-page, 8½- by 11-in. illustrated booklet summarizing the fire experience in this type of occupancy. Like previous publications in the series, this report describes a number of fire incidents, points out the fire causes and contributing factors, and includes pertinent extracts from NFPA technical standards on fire protection.

The booklet also has a list of 33 miscellaneous NFPA publications which contain important recommendations for persons interested in fire protection of motels. The back of the booklet features statistical breakdowns of 75 motel fires, including the places of origin, fire causes and factors contributing to the extent of damage.

Copies of FR57–4 — "Motels" can be obtained from the NFPA Publications Department for 50¢ each. Generous discounts are allowed for quantity purchases.

Lights for Volunteers

A NEW law passed in the Commonwealth of Pennsylvania in September permits volunteer fire fighters to display one or two flasher type blue lights on their motor vehicles. The lights are to be used only in response to fire or emergency calls. If one light is used, it can be placed on the center of the car roof or on the left windshield column where a spotlight normally would be located. If two lights are used, they can be placed on windshield posts on each side of the vehicle or on either side of the roof at the front of the car.

The law restricts the use of blue lights to volunteer firemen or members of a hose company. Each company is restricted to 65 names. Applications for the use of blue lights must be signed by the fire chief and filed with the Pennsylvania State Police.

It is also stipulated that the blue light shall not exceed 7½-in. in diameter. It is essential also that the vehicle operator be capable of operating the light from inside the vehicle.

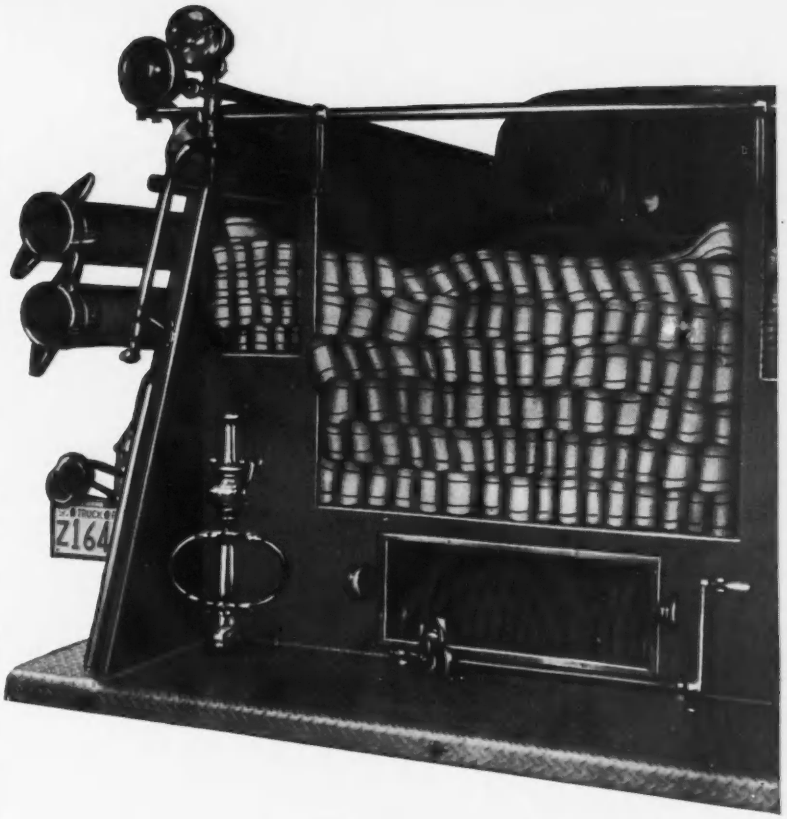
Violations of the new law can bring a fine of $10 and costs of prosecution or possible imprisonment of five days.

NBFU Appointments

NEW appointments and organizational changes have been announced by Lewis A. Vincent, general manager of the National Board of Fire Underwriters.

Kenneth J. Carl is now director of municipal surveys; Robert A. Young is his assistant; George J. Robinson (member NFPA Committee on Salvaging Operations) has been made senior assistant chief engineer; and George P. Stahl (member NFPA Committees on Standpipes and Outside Protection and Public Water Supplies for Private Fire Protection) is assistant chief engineer in the Chicago office of NBFU.

The appointments complete the organizational structure of the engineering department. There are now three major divisions, each under a director who reports to Chief Engineer John A. Neale (NFPA President). The divisions cover codes and standards, municipal surveys and research.



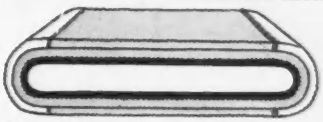
New Tuff-Edge® Hose defeats wear at the folds, where most failures begin

Here's a lighter weight, more flexible fire hose that stands up under the worst punishment of all—constant folding and unfolding! Longer life is built right in to Delaware Brand TUFF-EDGE HOSE by Quaker.

Reinforcement of the vital fold edges by 100% polyester filament gives TUFF-EDGE HOSE new high resistance to flexing, faster drying in folds and creases (where mildew formerly could start), maximum flexibility for more compact loading and racking.

TUFF-EDGE HOSE, testing at 600 lbs., is 15% lighter, 50% stronger than former high-quality cotton-jacket hose. Available in 50-foot lengths, in 1½" and 2½" diameters.

For complete information, write H. K. Porter Company, Inc.; Quaker Rubber Works, Philadelphia 24, Pa.; or Pioneer Works, Pittsburg, Calif.



Edge reinforcement of synthetic fiber takes repeated folding without failure, dries fast, reduces weight, saves storage space. Patent applied for.

H. K. PORTER COMPANY, INC.

QUAKER RUBBER DIVISION

Books for Fire Fighters

IMPORTANT DUST EXPLOSIONS

Violent dust explosions cause disastrous loss of life and property. They shatter buildings and start destructive widespread fires.

You, as a fire fighter, must know how to protect yourself and your community against such incidents.

This new book has 1,900 detailed accounts of dust explosions with 75 photographs of actual incidents. It reports the causes, casualties and property damage resulting from such explosions in the United States and Canada since 1890. By studying this information you can develop sound inspection programs as well as effective pre-planning for fire incidents.

Send for your copy today by using the simple order form below.

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84 pages
6 by 9 inches
75 photographs

FIRE PROTECTION FOR CHEMICALS

What do you know about chemicals? Know how to make a fireground size-up of a chemical plant?

This book will lead you to the answers.

Assistant Chief Charles W. Bahme, head of the Los Angeles Fire Department's Bureau of Personnel Training, tells fire fighters about the handling and storing of chemicals. He describes each chemical briefly and suggests proper fire protection and fire fighting techniques.

Here, for example, are some of Chief Bahme's comments:

> **"Aldehydes are usually volatile, flammable, soluble in water, and have a sharp penetrating odor. . . .**
>
> **"They possess the widest range of chemical activity of any class of organic chemicals. . . .**
>
> **"Water can be used in fighting aldehyde fires, the same as for alcohol; care should be taken to avoid prolonged breathing of fumes. The unsaturated aldehyde, acrolein, is flammable and highly toxic."**

***Fire Protection for Chemicals* is a handy reference book for your fire station library. It's must reading for all members of the fire service!**

Send for your copy today!

Clothbound — $3.00
152 pages
5⅛ by 8¼ inches

NATIONAL FIRE PROTECTION ASSOCIATION **FB 11**
60 Batterymarch Street, Boston 10, Massachusetts

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Name .....

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☐ **Check for $** ..... **enclosed.** ☐ **Please send bill.**

What other reference books do you have in your fire station library?

Minutes Ago This Jet Was Ablaze

This Jet Fighter skidded over half a mile and burst into flame at Worcester airport. In minutes Rockwood Double-Strength FOAM was blanketing the blaze. A dangerous fire was soon under control — because the airport and Worcester Fire Departments were prepared.

As you know, the danger of highly flammable liquid is not confined to aircraft. Every day tank trucks carrying volatile fuels move in and out of your city. Rockwood Double-Strength FOAM can help protect your city from this potential danger.

Rockwood Double-Strength FOAM applied with a Rockwood FW Eductor fights flammable liquid and other fires of the same type fast and sure. Three parts mixed with 97 parts water forms a solid FOAM blanket that quickly reseals itself. The Rockwood Eductor with the new FW metering check valve and the Type SG60 nozzle applying the FOAM make short work of fire.

Be prepared. Put this fire fighter to work. Specify Rockwood FW Eductor when you order a truck. Write Rockwood Sprinkler Company, 2006 Harlow Street, Worcester 5, Mass.

The Variable FW Metering Check Valve on the Rockwood Eductor is highly versatile (standard equipment). Both are incorporated in a single unit. Material is metered into the hose line in any proportion from 1% through 6%.

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Engineers Water . . . to Cut Fire Losses

Distributors in all principal cities

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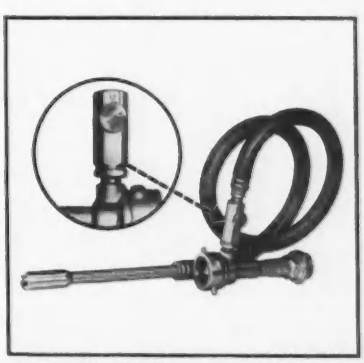

The Variable FW Metering Check Valve on the Rockwood Eductor is highly versatile (standard equipment). Both are incorporated in a single unit. Material is metered into the hose line in any proportion from 1% through 6%.

A colorful 8-page bulletin describing their adhesive pipe marking materials is available from *Printed Cellophane Tape Company*, 521 La Brea Avenue, Los Angeles 36, California. The tape markings should be of particular interest to industrial plant maintenance personnel and safety engineers. . . . New fire apparatus sales manager of *Ward LaFrance Truck Corporation* is Benjamin W. Lewis, who has established his office in Elmira, New York. He will coordinate sales activity on fire apparatus in all of the Company's territories. . . . *L. A. Young Spring & Wire Corporation* has purchased the assets and manufacturing rights of Link Radio Corporation of New York City. The Link manufacturing operation will be moved to the Company's Gonset Division which produces communications electronic equipment in California. . . . For fire protection in coal mines *B. F. Goodrich Industrial Products Company*, Akron 18, Ohio, is producing a special hose. This has a cotton jacket covered with synthetic rubber designed to resist acid, oil and abrasion. Detailed information is available from the Company. . . . Roger Cholin has been elected vice president in charge of fire

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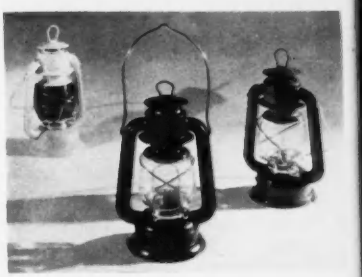
this month's EQUIPMENT NEWS

school training and national accounts of *Safety First Products Corporation*, Elmsford, New York. . . . The *Globe Manufacturing Company*, manufacturers of coats for fire officers and fire fighters, has a new descriptive leaflet that details the materials and design of coats, pants and other firemen's clothing. Price list is included. Write to the manufacturer at Pittsfield, New Hampshire. . . . *Federal Sign and Signal Corporation*, 8700 South State Street, Chicago 19, Illinois, has added a handy cover for the portable "Fireball" emergency warning light. The cover allows the revolving light to flash forward and protects occupants of the car from reflected light. . . . *Everson-Ross Company, Inc.*, badge manufacturer, has moved to 55 Vandam Street, New York 13, New York. It offers a complete line of identification badges and markers for municipalities and industry. . . . A wet water cartridge, called "Fire-Lik," is now being distributed by *Deynor Corporation*, 1 Depot Plaza, Mamaroneck, New York. A special mixer carries two cartridges with each cartridge designed to produce over 1,000 gals. of wet water solution. . . . *Allen B. Du Mont Laboratories, Inc.*, 750 Bloomfield Avenue, Clifton, New Jersey, has announced the appointment of William M. Cagney as eastern regional sales manager of 2-way radio communications systems. Also appointed was Frederick H. Guterman, now general manager of the Company's Technical Products Division. . . . A price list and informative bulletin describing fire extinguisher signs and inspection record tags are available from the *Minute Company*, Crystal Lake, Illinois. The Company also produces

Portable Power Megaphone

A new transistorized portable megaphone called the "Transi-Page" is now available from radio and electronic parts distributors. It is lightweight, has a complete weatherproof steel case and is powered by two 6-volt batteries. It is designed particularly for use by fire departments, forestry organizations and Civil Defense units. For information, write to Irwin Products Company, 4937 North Damen Avenue, Chicago 25, Illinois.



Miniature Lanterns

Miniature electric lanterns of authentic design are available from R. E. Dietz Company, Syracuse, New York. Measuring 8½-in. high, these "Comet" lanterns have baked enamel finish and are powered by two standard "D" batteries. One type is fire engine red with silver trim. Priced at $2.98 each with discount for quantity purchases, the lanterns may be purchased from R. E. Dietz Company, 225 Wilkinson Street, Syracuse, New York.

plant protection report forms for fire protection and accident prevention.

Mack Trucks, Inc., 1355 West Front Street, Plainfield, New Jersey, has named the following new distributors: Carl H. Shipley, Fort Smith, Arkansas; Lamar and Charles Davis, Albany, Georgia; Forde Johnson Truck Service, Inc., Idaho Falls, Idaho; Stockton Diesel Service, Stockton, California; Gray's Auto Service, Liberal, Kansas; Bell Mack Sales, Inc., Kalamazoo, Michigan; and Mack Truck Sales of Wichita, Kansas. . . . A new brochure showing types of emergency electric power plant equipment available is now being distributed by *Katolight Corporation*, Mankato, Minnesota. It shows standard models available and controls and panel equipment that can be utilized. It describes other electrical generating equipment up to 500 KVA capacity. Write to the Company for copies.

New Control Panel

A new "Du-o-matic" proprietary control panel for supervising automatic fire detection units and sprinkler systems is now being made by Notifier Corporation, 239 South 11th Street, Lincoln 8, Nebraska. It transmits trouble, supervisory and fire alarm signals directly to a remote station receiving panel. It can handle from one to 80 circuits. Standard cabinet is 12 by 18 by 6½ in. and features translucent vinyl windows. System is powered by 110 volts AC, transformed and rectified to low voltage DC operating current. Write to the manufacturer for complete information.